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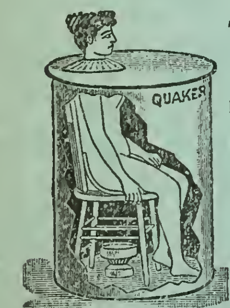

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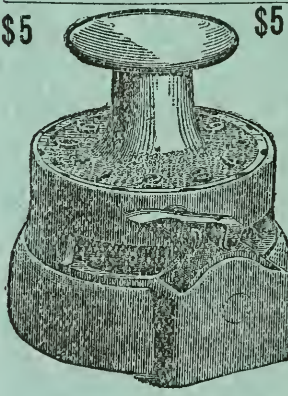

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The

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Devoted to the Advances made in Materia Medica in its Branches. Pharmacy, Pharmacognosgy, Chemistry, Botany, Pharmaco-Dynamics, Therapeutics and Toxicology.

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SOME MEDICINES OF THE CREE INDIANS OF THE NORTH.*

By C. Flexon, Winnepeg, Man.

At a late hour during the close of last week a most interesting gentleman, a stranger to me, hearing that I had been appointed a delegate at this meeting, called to see if a brief record of his experience among the Swampee Indians of the North, with whom he had lived for six years, would be acceptable to me. I thanked Mr. Strath — for such is his name—and he thereupon furnished the following particulars of some of the drugs prescribed by him in his capacity of medical officer at Norway House, about 400 miles due north of Winnepeg. The conversation which I had with him was unfortunately but too short, as it was extremely fascinating. He has evidently been a close observer of those people. Apart from speaking their language fluently, I should say a pretty accurate knowledge had been gained by him of the strength and weakness of the Cree mind. As a student of Greek and Hebrew, he has a remarkably high opinion of the Cree language. For beauty and perfection, he says, it cannot be surpassed, and to hear him talk of the poetry and eloquence of some of the native sermons which he has heard, has somewhat destroyed my confidence in the language in which we are conversing on this occasion, and which we are conceited enough to suppose is the best in the world.

DISEASES COMMON TO INDIANS.

A large number of the diseases common among the white people are just as common among the Indians, and while many of the drugs used by them are well known to us, the manner of using them is certainly different. In the treatment of worms, for instance, male shield fern, —the Aspidium of the United States Pharmacopœia; Filix Mas, of the Ph.

*Presented to the scientific section of the American Pharmaceutical Association.

Br.—is given as a strong infusion, combined with senna and wild indigo. The latter article, by the way, is used as an antiseptic, and has excellent drying properties in the treatment of eczema humidum, or "weeping eczema." One of the commonest drugs with them, and which is to be seen hanging up to dry in every wigwam or tepee, is the wekas or sweet flag—the calamus of the Pharmacopœia. It is considered a specific in all throat troubles with the exception of diphtheria, which is unknown to them. In cases of pharyngitis and tonsilitis it is used externally and internally. The rhizome is chewed and the saliva allowed to wash the throat. Poultices are made by mixing the powder with boiling water. It is a curious fact that the Indians are not only ignorant of gargles, but of the act of gargling, and Mr. Strath has been amused time and again in his efforts to get a Cree to gargle. This drug is carried about by the natives in the winter time as a tonic, and is chewed because of its stimulating properties by the Indians as tobacco is chewed by the white—or should we say, more correctly, by the civilized—man? Most of their medicines are in the form of infusions. Very little is known about the salts, and it was with the greatest difficulty that the officer could persuade a patient to take Epsom salts, in consequence of a deep-rooted suspicion that the magnesium sulphate will produce inflammation of the bowels. Pills, no matter how strong, are swallowed ad libitum. Podophyllum peltatum, or mandrake, is taken in doses of 20 grains. Carui fructus, or the common caraway, is indigenous to this country, and is the common remedy for colic, a complaint perhaps more frequent and more stubborn than with us.

BLUE COHOSH, AN ABORTIFACIENT.

Another indigenous plant, and one which grows in that latitude in great profusion is the caulophyllum, or the blue cohosh, also known by the name of pappoose root, squaw root or blueberry root. It is used very largely in obstetrics and all female complaints. In doses of 30 to 60 grains the powdered rhizome is given to produce abortion; but the Crees have a powder which they mix with the cohosh, and when thus administered Mr. Strath has known more than one instance where a three-months fœtus has been expelled from uterus without ensuing danger to the mother. He even goes so far as to say that abortion procured in this manner precludes all possibility of future conception. This powder they never allowed Mr. Strath to see, and, in spite of his offer of $50 for a small sample, the secret has been kept profoundly sacred. Menstruation at the age of eleven years is the rule, and he considers it a remarkable fact in a cold country where the thermometer often registers 50 degrees below zero.

DRUGS COMMONLY USED.

Ladies' slipper, the cypripedium of the Pharmacopœia, imported from the tribes to the south, is chiefly used in rheumatism in very large doses. It is also used in the treatment of epilepsy, but this disease is of rare occurrence.

As an aromatic stimulant hedeoma, or pennyroyal, is as much used by the Cree women, and in a similar manner, as by our own people.

Plantago, or plantain, is used commonly as a hemostatic, and is chewed by the doctor and applied as a paste to the bleeding surface. This drug is also their remedy for toothache It is not put in the aching tooth, but is swallowed.

Some of you will be surprised to hear that the Indians suffer very much from their teeth, and that my informant has practiced a great deal of dentistry during his residence with them.

Juniper is used in three forms. The berries are stewed and eaten as a diuretic. The leaves are dried and dusted over indolent sores, healing them with wonderful rapidity, and the root infused is administered in cases of gravel. Though Bright's disease is rare, gravel is very common, and most old men die of it. Hydrangea is used with juniper and with great success.

Spearmint, sarsaparilla and dandelion are taken for the same complaints as we ourselves take them.

Hemlock spruce is much thought of. The inner bark of the tree, freshly peeled, is mixed with equal parts of poplar and black birch to make a decoction. In the process of boiling an oil is taken from the surface. This oil is mixed in the proportion of two drams to a quart of water, which quantity is drunk in the course of two or three days as an abortive medicine.

THE INDIAN'S NURSERY POWDER.

We must no longer pride ourselves on the nursery toilette powders which we present to our customers in such a variety of charming packages. To the Indian, whose untutored mind, as Pope says, sees God in the clouds and hears Him in the wind, must we go for the most agreeable and most absorbent article of the kind yet introduced, a sample of which I have with me. It is nothing but the rotten interior of the hemlock spruce, lacking, perhaps, the extreme fineness which could only be obtained by modern methods and machinery.

We now come to willow bark, which is used as a hemostatic in the form of infusion. It is the belief of the Indian that bleeding should be arrested at once. He has an awful fear of death from loss of blood, and an Indian has been seen to faint whilst watching another having his finger amputated.

Regarding salicin, "the important constituent of willow bark," the Cree is incredulous as to its source. He cannot understand how a white powder can be made from a bark, and it is entirely without faith that he is occasionally induced to take this remedy or the salicylates for rheumatism.

STRONG REMEDIES FOR FEVER.

The belief that fever can only be cured by vomiting it up has a strong hold on the Cree mind, and he, therefore, swallows the strongest remedies by taking what we would consider more than a maximum dose of veratrum viride, or the green hellebore of the Pharmacopœia ; but this powerful drug has another use, the story of which will, to say the least, be news to some of the gentlemen present. The rootlets and the rhizome are powdered between two stones, and as such is taken as a snuff to reduce hernia. The modus operandi is thus : The patient, naked, of course, is elevated to a horizontal position. He then takes a good pinch of the snuff and during the violent sneezing which follows, a companion standing ready at the side plunges back the rupture with his fist, and if it is not a case of strangulation the treatment is sufficient. To undo matters, so to speak, the patient is advised to eat all the pork he can. Mr. Strath is of the opinion that hernia is common with the tribe in consequence of the abundance of grease consumed by

them, and he ventures to say that eight out of every ten Crees are ruptured.

Skin diseases of all kinds are there, and are treated with an ointment made of equal parts of gun powder and lard.

Sturgeon oil is used instead of cod liver oil and is clarified until it becomes the color of tincture of capsicum. In one ounce doses, which are considered large, it acts as a cathartic.

An infusion of wild raspberry leaves combined with willow bark is an excellent remedy for cholera infantum, promptly administered, but there are a great many deaths from diarrhœa. In that latitude, and in all degrees north of 54, a very large raspberry grows which is called the "headberry" by the Indians; its botanical name is rubus arcticus. The berry is found at the head of the stem, two feet in height.

A FEATURE OF INDIAN SUPERSTITION.

Rumex, or yellow dock, is well known and used extensively as a laxative and for poultices. In any critical case of illness, the medicine man of the tribe is called in and is required to say whether or not the patient will recover. This skilful fakir has a powder resembling powdered rhubarb in appearance. This he places on the surface of a saucerful of water. The powder in a moment or two spreads out into rays either to the east or west. If to the former point of the compass, the victim will die; if to the latter, which invariably happens, recovery is promised. It is quite likely that a promise of such a nature materially] helps the patient by buoying him up and by inspiring him with hope. So much for one feature of Indian superstition.

INDIAN REVENGE.

Indian revenge, or rather that of the Northern Cree in particular, is, if true, of the most shocking character. It is said that if a Cree wishes to punish another severely he does it by disfiguring him for life, by introducing an almost tasteless compound into his tea or tobacco—generally into his tea, which he drinks strong and in great quantities. This vile compound is made up of twenty-seven vegetable and animal drugs. The victim feels no ill effects at the time of taking it, but in the course of two or three months the skin begins to peel, a rash breaks out and spreads over the entire body. Subsequently the skin gradually darkens to black. and on the exposed parts the hair grows so thickly as to give the unhappy Indian the appearance of a baboon. He never recovers. There is no romance about this, I am assured, for there are at least half a dozen cases of the kind to be found in the country at this day.

The most fatal poison is the wild carrot. These Indians have a fashion of boasting among themselves of their ability of poisoning their enemies at various distances. Just imagine an Indian polishing off an enemy at a distance of five miles by a wild carrot?

THE BRUSSELS CONGRESS.

At the concluding general meeting of members of the Pharmaceutical Congress held in Brussels last August, the General Secretary, M. Duyk, read a report of the resolutions passed in reference to the several subjects which had been discussed. An official draft of these resolutions has now been issued, and from it we extract the following particulars.

In regard to pharmacutical education

it was decided (1) that in all countries there should be established independent pharmaceutical schools equal in position to the departments of a university and having similar powers; (2) that the following additional compulsory subjects of study should be introduced into the curriculum of pharmaceutical students: *a.* Pharmacy law and ethics. *b.* General hygiène. *c.* Bacteriology (theoretical and practical).

In regard to the practice of pharmacy it was decided—

1. That the practice of medicine and that of pharmacy should not in any instance be carried on by one and the same person; consequently that medical practitioners should be prohibited from selling medicines to their patients, except in the case of a doctor living in a place where there is no pharmacist and then on the condition that he should only supply medicine to patients residing at a certain distance from the nearest pharmacy.

1. *bis.* That legislative effect should be given to the same principle in the case of veterinary practice.

2. That every open pharmacy should be the property of the pharmacist by whom the business is carried on and that every form of association other than that between legally qualified pharmacists should be prohibited, as well as any combination by which the proprietorship of a pharmacy would be shared by a pharmacist and by other persons not having the diploma of pharmacist; the only exception to this rule to be in the case of the widows and heirs of pharmacists, and then only for a limited period.

3. That the number of pharmacies should be limited in proportion to the wants of the population.

4. That mutual aid associations, exceptionally allowed to be proprietors of a pharmacy, should be prohibited from supplying medicines to any persons except their own members.

5. That civil hospitals should be allowed to keep pharmacies, but on condition that the pharmacy is in each instance managed by a qualified pharmacist, and that it is used exclusively for the internal service of the hospital.

6. That the druggist qualification should be abolished.

The Congress was of opinion that the composition and strength of medicinal preparations should be uniform and that the amounts of their important constituents should be regulated by competent authorities.

In regard to the analysis and standardization of galenical preparations, it was decided—

1. That from the double point of view of therapeutic progress and of pharmaceutical science, the establishment of uniform processes and methods for the determination of active constituents of potent medicines has become essential.

2. That every pharmacopœia should indicate the analytical processes applicable for the standardization of medicines.

3. That such processes should be as far as possible uniform and applicable to drugs, as well as to galenical preparations.

4. That with the view of realizing that desideratum, the duty of elaborating a codex of analytical methods, suitable for the valuation of drugs and galenical preparations containing alkaloids, glucosides or other definite constituents, should be entrusted to an international commission.

The Congress was also of opinion that in regard to new medicines, serums and the opotherapeutic products recently introduced, the following regulations should receive legislative recognition:—

1. That the denominations of medicines should be public property and not restricted to particular individuals or used as trade marks.

2. That in every country a commission should be established fully authorized to carry out a complete study of new medicinal agents and if requisite, to revise the nomenclature applied to them. The results of such work to be reported annually by the commissions.

3. That pharmacists should have the exclusive right to sell organo-therapeutic products, serums, antitoxines, etc., which are only to be manufactured in laboratories having the sanction of the Government for that purpose.

4. That in the event of experiment proving the clinical action to be the same, it would be desirable to employ dried organs as the organo-therapeutic products.

In regard to pharmaceutical legislation, the Congress was of opinion that the law regulating the practice of pharmacy in each country should be embodied in the respective Pharmacopœias.

That a compulsory minimum tariff should be established for medical aid associations, insurance societies, etc.

That every medicinal specialty should be required by law to bear a label stating the names of all the substances entering into its composition and their doses.

That the revision of pharmacopœias should be carried out by commissions, consisting in great part of pharmaceutical members, practical as well as professional.

That the commission engaged in compiling a universal pharmacopœia should continue its labors and indicate the medicines which are in most general use.

That arrangements should be made between medical and pharmaceutical societies with the object of repressing the trade in secret remedies and opposing every form of quackery.

That the office of inspection of articles of food, etc., should be distinct from that of the inspection of pharmacies and that the warehouses, etc., of wholesale druggists should also be subject to inspection.

That when a legal inquiry requires consideration of chemical details, the court should engage a chemical adviser, who would conduct any necessary analysis, etc., conjointly with the chemist acting on behalf of the defendant or other party to the litigation. Both should then present their reports to a superior court of reference, or when some special subject had to be dealt with, to delegates chosen for the purpose, who would then consider the matter from the purely scientific point of view, and report their conclusions for the assistance of the court.

That, in specifying the maximum doses of medicines, pharmacopœias should include all substances administered in the form of glysters, bougies, suppositories, irrigations, hypodermic injections, lotions, etc.

A commission was constituted for considering and giving effect to these resolutions, and, for the several countries represented at the Congress, the following members were appointed:

Belgium---- -----Professor Ranwez.
Great Britain-----Dr. Paul.

Ireland	Professor Tichborne.	U. S. of America	Professor Remington.
Holland	Professor Wefers Bettinck.	Austria	Professor Vogl.
France	M. Petit.	Portugal	M. Tedeschi.
Sweden	M. Sebardt.	Spain	M. Colomer.
Norway	M. Strömer.	Italy	M. Ceruti.
Mexico	M. Morales.	Roumania	M. Altan.

Secretary ---------M. Duyk.

PHARMACEUTIC CHEMISTRY, PHARMACOLOGY AND PHARMACO-PHYSICS THE NATURAL STEPPING-STONES TO SCIENTIFIC MEDICINE.

By ALFRED R. L. DOHME, PH.D., Baltimore.

Before entering upon a discussion of the subjects embraced by all the above caption, it might not be out of place to make clear what the exact meaning of the terminology that will come up for consideration is. Some little confusion has arisen recently, because of the double use of the word pharmacology, and the dictionaries do not help us out in the matter. They define pharmacology as the study of drugs both as to their recognition, properties and therapy. In other words, it is a general term for the study of drugs and their therapy, or a combination of pharmacy, the science of compounding drugs, with materia medica, the description of drugs and their medicinal effect. This is in accordance with the derivation of the word, which is made up of the Greek words pharmakon and logos, meaning a discourse on or a study of drugs. However, the word has also been used, especially in Germany, to mean the study of the physiologic effect of drugs on the human system. Thus, when acetanilid is taken into the stomach and produces certain results or effects, it is the province of pharmacology to study and explain what organs, tissues, fluids, etc., of the body are effected by the same and in what way. Pharmaceutic chemistry has to do only with the chemistry of drugs; i. e., given a drug, say belladonna root, it is the province of pharmaceutic chemistry to discover entirely what the same contains and in what relative quantities, thus : atropin, hyoscyamin, hyoscin, starch, resins and which, fats and which, malic acid, etc. Pharmacognosy is the study of the various physical properties of drugs which will enable one to recognize them, including their history. It hence embraces their botany, microscopy, histology, the chemistry of their constituents, and the history of their use as a drug. Pharmaco-dynamics is a term which has been employed to express the effect and uses of medicines, being derived from the Greek words pharmakon, a drug, and dynamikos, the power or effect, and is is hence practically the same as therapeutics. In considering the study of the effects of drugs upon the human economy, it appears to me that we have to become acquainted with the following facts in order to get at a scientific

knowledge of how drugs act. We should know all of the constituents of the drug we desire to use; we should know the physiologic effect of every constituent of the drug we are administering, and then use only those constituents, or preparations containing only those constituents that produce the effect we desire to produce; and we should know the cause of the effect of each of those constituents. The first embraces the pharmaceutic chemistry of the drug, the second its pharmacology, and the third its pharmaco-physics, which last word I have coined, * as I believe there exists no word to express the study of the causes of the effects of drugs. It would be well to make clearer, perhaps, the distinction intended to be conveyed by the terms pharmacology and pharmaco-physics, and a concrete example will best serve to do this. Let us take acetanilid, as this will serve our purpose quite well and is besides one of the most generally used drugs. The pharmaceutic chemistry of acetanilid is the study of its formation, properties and decompositions. Its pharmacology is the knowledge resulting from the study of its physiologic effect on all the organs, tissues, fluids, etc., of the body, thus making plain what effect it produces, when we administer it, on the heart, blood pressure, nerve centres, liver, kidneys, mucous membranes, blood lymphatics, etc. Its pharmaco-physics is the knowledge resulting from the study of the cause of the effects observed in studying its pharmacology, and would represent the study of the physiologic effects of all the groups contained in the acetanilid molecule. Acetanilid is made up of the group of acetic acid or acetyl (CH_3CO) and anilin ($C_6H_5NH_2$), which in turn is made up of the ammonia radical, amid (NH_2), and of benzine (COH_6), a hydrocarbon produced by the destructive distillation of coal. The province of pharmaco-physics would be to discover whether the effects of acetanilid, which we observed in studying its pharmacology were due to the acetyl group, the ammonia group or the benzine group; or, what is more probable, which of the various effects of acetanilid was due to each and all of these constituent radicals of the acetanilid molecule. This can be done very readily by varying the various radicals and observing the failing or modification of this or that effect. Thus, if the red corpuscles are precipitated, producing cyanosis and eventual collapse, is this due to the ammonia radical (NH_2), or the acetyl radical or to the benzine radical, present in the molecule? Further, if the blood pressure is diminished, to which of these radicals is this due, etc.? If this is tabulated and known, for the various drugs of our pharmacopœia, we will reach such a desired and advanced stage in our knowledge of medicines that we can control the unpleasant and undesirable effects of our remedies entirely, and produce and use only such remedies as will produce just the effects we desire and no other effects. This is not only true of synthetic remedies, but of all remedies, inorganic as well as organic. No doubt this appears chimeric to many and beyond the limits of probability and also usefulness, because of its apparent complexity, but there can be no doubt at all that it is not only among the probabilities, but that it is the natural evolution of the science of medicine that will

* The word Pharmaco-dynamics has been and is extensively used, and the necessity of Pharmaco-*physics* is not apparent. [Ed.

take place during the next fifty years. German schools of medicine are entering upon this as yet untrodden and fertile field of investigation, and we should give it the attention that its importance merits. It is not a matter that can be taught, because it is as yet an unknown, or practically an unknown, science, but it can and should be made the subject of investigation and study, so that we may become acquainted with the facts that it will give us and enable us to make use of them in administering medicines. How few physicians to-day know the exact effect of the medicines they prescribe on the various organs and what is the cause of that effect? They know that jaborandi produces activity of certain glands, resulting in increased secretions thereby, and they know that the pilocarpine in these leaves produce this effect, but do they know what other effects pilocarpine produces on the other organs, say on the blood, liver, kidneys, etc., and do they know what causes pilocarpine to produce this effect? They may say that it is not necessary for them to know this, as the effect is produced just the same, which is all they desire. This is quite true, and in the present state of our knowledge of medicines and their effects it is about all they can know; but would not their ability to combat disease and administer medicines more scientifically and effectively not be many times increased if our knowledge of these same medicines and their effects, and the cause of the effect, were known to them. They would then know that since, we will say for example, pilocarpine interferes with the functions of the liver it is not advisable to use this drug for a patient who requires a diaphoretic, but at the same time has a diseased liver. We might perhaps have learned by that time that a certain radical in the pilocarpine molecule produced the untoward effect upon the liver, but that pilocarpidine, while still an effective diaphoretic, no longer produced this effect on the liver, due to the elimination from its molecule of the undesirable radical present in the pilocarpine molecule. There can be no doubt of one thing, and that is that medicine in its narrow sense, i. e., the science of the administration of drugs, has not advanced at the same rate that the science of surgery, bacteriology, pathology or anatomy have during the last half century. In fact, many physicians have grown skeptical as to the value of drugs and think the less of them used, as a rule, the better. The development and future above outlined for the science of medicine in its narrow sense, will, unquestionably, remove all such skepticism and push therapeutics forward as a most necessary and invaluable requisite for the combating of disease. I may be pardoned when I say that scientific medicine, i. e., the scientific administration of drugs is only in its infancy at present, and that most of our medicines are administered empirically, i.e., are administered not because we know exactly why they are what our particular case in hand calls for, but because experience has taught us that they are effective and will produce certain results. I do not wish to be misunderstood in this connection, and when I say the administration of medicine is largely empirical I do not mean to state or imply anything derogatory, but merely to say that our present knowledge of the administration of medicine does not enable us to do anything better. My purpose in going into this

detail as to empiricism vs. science is merely to explain the meaning intended to be conveyed by the term scientific medicine in the title of the paper I am presenting. All physicians will agree that it is desirable to increase our knowledge of pharmacology and pharmaco-physics, for the more they know about the effects of drugs and their cause, the better off they will be in successfully combating various diseases. There is one obstacle, however, to success in this direction in this country and which does not exist in Germany, and that is the indifference of hospitals and clinics to take up and try, carefully and scientifically, any new preparation that may be offered them for experiment. The necessary thing to be done in this country to make the development and study of pharmacology successful is the adoption of courses of lectures on these subjects, together with the opening of laboratories for their experimental study and research. In Germany chairs of pharmacology are established at almost every university, and at several of them the lecture-room work is supplemented by experiments and investigations and study in the laboratory and clinic. Thus, the laboratories of Prof. Schmiedeberg in Strasburg, Bauman in Freiburg, and Drechsel in Leipzig, are headquarters for this work in Germany, and their number is steadily growing. It has not been so many years ago that in order to study the new science of pathology one had to go to Berlin, to Virchow's laboratory, but Virchow has gradually developed other capable teachers and expounders of his theories and methods, and now pathology is a part of the course in medicine in practically every college in this country. So it will be with pharmacology and pharmaco-physics. The pupils of Schmiedeberg, Drechsel and Bauman will organize laboratories and courses just as their instructors did, and the result will be that every school of medicine will embrace as part of its curriculum lectures and laboratory work on pharmacology, and, perhaps, also pharmaco-physics. Some schools of medicine have such courses already, as, for instance, Johns Hopkins, Harvard, Pennsylvania, Ann Arbor, etc., and others will unquestionably adopt the same in the near future. When this is brought about the era for the scientific administration of drugs, i. e., scientific medicine, will set in, and the stepping stones to reach that stage will be pharmaceutic chemistry, pharmacology and pharmaco-physics.

LIST OF REACTIONS AND REAGENTS ACCORDING TO NAMES OF AUTHORS.

(*Continued from December Number.*)

Neelsen's carbolfuchsin for identifying tubercle bacilli in the sputum is prepared by adding a concentrated alcoholic fuchsin solution to a 5 p. c. aqueous solution of carbolic acid (5 g. of crystallized carbolic acid are dissolved in 100 cc. of water and 1 g. fuchsin, dissolved in 10 g. alcohol, is added). *Erlich's* and *Ziel's* carbolfuchsin solutions have similar compositions.

Nessler's reagent for aldehyde. Aldehydes when treated with *Nessler's* ammonia reagent (q. s.) or with a solution of potassium mercuric iodide and baryta water, yield brownish-black precipitates, which differ from the precipitates caused by the same reagents in ammonia solutions, by being insoluble in potassium cyanide.

Nessler's reagent for ammonium salts is an alkaline solution of mercuric chloride and potassium iodide. With ammonia as well as with ammonium salts it causes a yellow to reddish-brown coloration or precipitate. The reagent is prepared according to various formulae, of which the following are typical;

I. 50 g. potassium iodide are dissolved in 50 cc. hot water and concentrated mercuric chloride solution (20-25 g. mercuric chloride) added until a permanent precipitate appears. After filtering 150 g. potassium hydroxide dissolved in 300 ccs. water are added, and the whole diluted to one liter. 5 cc. more of the mercuric chloride solution is now added, the resulting precipitate allowed to settle, and the clear liquid decanted (*Kubel*).

II. Dissolve 2 g. potassium iodide in 5 g. water; add 4 g. of mercuric chloride, or enough so that upon warming, a little of the precipitate remains undissolved. After cooling, dilute with 20 g. water, filter, and add 30 ccs. of a solution of 1 p. KOH in 2 p. of water. (*Ludwig* Medicin. Chemie.)

Nessler's reagent for wine pigments is a solution of 7 p. alum and 10 p. sodium acetate in 100 p. water.

Neubauer's test for biliary acids is a modification of *Pettenkofer's* reaction. A few drops of urine are evaporated to dryness on the water-bath, a drop of sugar solution (1:500) and a drop of concentrated sulphuric acid are added, and the whole heated on the water-bath. If biliary acids are present, a violet-red color appears at the edge.

Neubauer's test for chloroform in the urine. A current of air is passed first through the urine in question, then through a red-hot porcelain tube, and finally through a solution of silver nitrate. If chloroform was present in the urine, a precipitate of silver chloride is formed.

Neumann-Wender's alkaloid reagent is furfurol-sulphuric acid (5 drops of furfurol in 10 ccs. pure concentrated sulphuric acid). See *Weppen's* veratrin reaction.

Neumann-Wender's test for grape sugar in the urine. 1 cc. of diluted urine (1 p. urine to 10 p. water) is treated with 1 cc. each of methylene blue solution (1:1000) and normal KOH solution and boiled for a minute. If the solution is hereby completely decolorized, sugar was present in the urine. Compare *Mulder's* test.

Nickel's test for mineral acids in the presence of organic acids depends upon the fact that only the presence of the former is wood stained by phloroglucin. If 0.5 p. c. of hydrochloric acid is present in vinegar, upon adding phloroglucin and a piece of pine wood or wood-pulp paper, this latter is distinctly stained upon boiling the solution.

Nickel's color reactions of carbon compounds. Compare Zeitsch. f. analy. Chem. 1889, p. 244, also see under *Millon's* reagent.

Nivière and **Hubert's** test for fluorine in wine. Render the wine slightly alkaline with ammonium carbonate and, by means of calcium chloride, precipitate

any fluorides present as calcium fluoride. After heating the incinerated residues with silicic and sulphuric acids, fluorine is identified in the usual manner as silicium fluoride.

Noll's reagent is a solution of sodium hypo-chlorite.

Nylander's reagent for glucose. 2 g. bismuth subnitrate and 4 g. Rochelle salts are dissolved in 100 g. of an 8 p. c. solution of caustic soda. To 10 p. of the solution to be tested (diabetic urine) add 1 p. of reagent, and boil. A darkening of the liquid due to reduction of the bismuth salt indicates glucose. This solution is also known as *Almen's* solution.

Obermeier's reaction for indican. The urine is treated with lead acetate, the resulting precipitate filtered out, and the clear filtrate shaken with a ½ p. c. solution of ferric chloride in fuming hydrochloric acid (sp. gr. 1.19). Upon extracting with chloroform, this is colored blue if indican was present.

Olivier's test papers for identifying albumen and sugar in the urine, are filter papers saturated with well known reagents for albumen and sugar.

Test-papers for albumen: picric and citric acids; sodium tungstate and citric acid; potassium mercuric iodide and citric acid; papers separately saturated with potassium ferrocyanide and citric acid.

Test-papers for sugar: indigo-carmine and sodium carbonate, separate.

These papers also go by the name of *Geissler's* test-papers. For particulars see Ph. Centralh., 24, p. 431; 25, p. 3.

Ost's copper solution for estimating sugar, contains 23.5 g. cryst cupric sulphate, 250.0 g. sodium carbonate, and 100.0 g. potassium bicarbonate per litre. Compare *Soldaini's* solution.

Otto's reaction for picrotoxin. The yellow solution of the alkaloid in concentrated sulphuric acid shows a reddish-brown color at the zone of contact with a drop of potassium bichromate solution; upon mixing, the solution is colored green.

Otto's morphine reaction. With a solution of hydrochloric acid, ferric chloride and potassium ferricyanide, morphine solutions yield precipitates of Prussian blue.

Otto's modification of *Fehling's* solution (q. v.) is a solution of 1 p. copper sulphate and 3 p. tartaric acid, to which enough caustic soda solution is added to just produce a clear solution.

Pacini's solutions, Nos. I and II, are preservative solutions for microscopic sections, and have the following composition:

I.

Mercuric chloride,	1 p.
Sodium chloride,	2 p.
Glycerin (25° Bé),	13 p.
Water,	113 p.

II.

Mercuric chloride,	1 p.
Acetic acid,	2 p.
Glycerin (25° Bé),	43 p.
Water,	275 p.

Pagel's test for phorphorous acid in phosphoric acid. Phosphorous acid, upon warming with mercuric chloride solution, gives a white precipitate of mercurous chloride.

Panum's test for albumen. Any liquid (as urine) containing albumen yields a coagulum when boiled with a like volume of a saturated solution of sodium sulphate or sodium chloride.

Paul's reaction for biliary coloring matter. If normal urine (or urine containing sugar or albumen) is colored with methylviolet, the color remains unchanged; if, however, the urine contains biliary pigments, the violet color is changed to blood-red.

Papassyli's reaction for cane sugar. See *Reich's* reaction.

Pavi's solution for estimating glucose. 4.158 g. crystallized copper sulphate, 20.4 g. Rochelle salts, and 20.4 g. caustic potash are dissolved in water; 300 ccs. ammonia water (sp. gr. 0.88) are added, and the whole diluted to one litre. 10.0 ccs. of this solution represent 0.005 g. glucose. When all the cupric salt has been reduced to cuprous the solution is colorless.

Compare *Fehling's* solution.

Pellagri's morphine reaction. Dissolve morphine in concentrated hydrochloric acid, add a few drops of concentrated sulphuric acid and heat on the water-bath. A distinct purple coloration results. Now add some more hydrochloric acid, then sodium bicarbonate to a neutral reaction, and, finally, an alcoholic solution of iodine; the liquid is colored a deep chrome-green.

Pellet's solution for estimating glucose. 68.7 g. copper sulphate, 200 g. sodium chloride, 100 g. anhydrous sodium carbonate, and 6.87 g. ammonium chloride are dissolved in hot water and diluted with water to 1 litre. 10 ccs. of this solution are reduced by 0.05 g. glucose.

Compare *Fehling's* solution.

Pelouze's test. Same as *Moore's* test.

Penzoldt's test for acetone in the urine. A few crystals of ortho-nitrobenzaldehyde are dissolved in water and added to the distillate from urine, which is then rendered alkaline with caustic soda. In the presence of acetone the mixture becomes yellow, then green, and, after several mitutes indigo, separates out.

Penzoldt's test for sugar in the urine, by means of *Ehrlich's* reagent. The urine is rendered strongly alkaline, and treated with a solution of diazobenzolsulphonic acid (1:60); at the same time a control test is made, using normal urine. The latter is colored yellowish-red by the reagent; diabetic urine soon becomes dark red and opaque.

Penzoldt's test for naphthalene in urine. If 1 cc. of concentrated sulphuric acid is added to a trace of urine containing naphthalene, the urine floating on top of the acid will be colored dark green. Upon standing, the acid will assume the same color.

Perenyi's solution for hardening microscopic preparations consists of 4 volumes of 10 p. c. nitric acid, 3 vol. of alcohol, and 3 vol. of a 0.5 p. c. solution of chromic acid.

Perrot's reagent for ethereal oils is a solution of dimethylanilinviolet in glacial acetic acid and dilute alcohol. With many ethers, aldehydes, phenols, etc., this reagent gives characteristic colorations, but does not react with fatty oils or hydrocarbons. On this account this reagent can be employed to detect many adulterations of ethereal oils.

Persoz's solution for distinguishing textile fibres is prepared by shaking a solution of 10 g. zinc chloride in 10 g. water, with 2 g. of zinc oxide. Upon digesting any fabric in this basic zinc chloride solution at 30°—40°, any silk contained therein is dissolved.

Pettenkofer's reaction for biliary acids. Upon adding cane sugar and concen-

trated sulphuric acid to a solution of biliary acids (in the urine), an intense purple coloration is produced.

Strassburg's modification. Dissolve some cane sugar in the urine, saturate filter paper with this solution, and after drying, bring the paper in contact with a drop of sulphuric acid. The red color is then to be observed in translucent light.

Drechsel's modification consists in the use of phosphoric acid (instead of sulphuric acid) and warming.

Udransky's modification. Instead of cane sugar and sulphuric acid, furfurol-sulphuric acid is employed.

See also *Neubauer's* test.

By reversing the process, *Pettenkofer's* reaction can also be employed in testing for sugar; e. g., in glucosides. See *Brunner's* reaction for digitalin.

Piria's tyrosin reaction. The sediment from the suspected urine is warmed with a little concentrated sulphuric acid, diluted, neutralized with calcium carbonate, and the filtrate treated with ferric chloride solution. If tyrosin was present, the solution is colored violet.

According to *Piria-Staedeler*, the urine sediment is warmed with a little concentrated sulphuric acid, the solution diluted, neutralized with barium carbonate, boiled, filtered, and added, drop by drop, to a dilute solution of ferric chloride.

Planta's alkaloid. See *Mayer's* reagent.

Plugge's phenol reaction. A dilute phenol solution is rendered intensely red when boiled with mercuric nitrate solution containing a trace of nitrous acid. At the same time metallic mercury separates out, and an odor of salicylol is developed. Compare *Fresenius'* phenol reaction.

Plugge's reagent yields with albumen a red color similar to the one produced with *Millon's* reagent.

Plugge's reagent for gum ammoniac. 30 g. caustic soda are dissolved in water, the solution kept cool during the addition of 20 g. bromine, and then diluted to one liter: A drop of this solution, when added to an aqueous or alcoholic solution of gum ammoniac prepared with the addition of dilute soda lye, immediately causes a rapidly disappearing, beautiful violet color.

Podwyssotzki's reaction for emetine. With a drop of a saturated solution of sodium phosphouranate, emetine yields a brown coloration which turns to blue upon the addition of a drop of hydrochloric acid.

Pollaci's phenol reaction. Phenol turns brown upon treatment with chromic acid mixture.

Posner's reaction for peptone and albumins in urine. After rendering the urine alkaline, it is poured into a test-tude and a layer of very dilute, almost colorless copper sulphate solution carefully poured on. Peptone causes the formation of a violet zone even in the cold; albumin gives the same reaction upon warming.

Compare *Brücke's* and *Rose's* biuret reaction.

Poutet's reaction for fatty oils (elaidin reaction.) Pour 10 g. of oil, 5 g. nitric acid (40—42° Bé), and 1 g. mercury into a test-tube, dissolve the mercury by shaking for three minutes, allow the mixture to stand 20 minutes, and again

shake for a minute. Various fats show differences in color, and in the ease with which they solidify.

Olive oil peanut and oil harden most rapidly.

According to other authorities, 50 ccs. of the oil are mixed with 12 g. mercury and 15 g. nitric acid (sp. gr. 1.35), by which treatment only olive and oil of almonds are solidified, all other oils remaining liquid.

Pradine's reagent for foreign coloring matters in wine is a saturated solution of ammonia gas in ether. Upon shaking this solution with wine, the foreign coloring matters are dissolved in the ether.

Preyer's test for carbon monoxide in the blood. 3—4 drops of the suspected are warmed for 5 minutes at 30° C. with 10 ccs. water and 5 ccs. potassium cyanide solution (1:2.) While the spectrum of normal blood, when treated as above, looses the absorption line of oxy-hæmoglobin, and in its place shows a broad absorption band, the spectrum of carbon monoxide blood remains unchanged.

Payer's hydrocyanic acid reaction. The reagent employed is a very dilute alcoholic tincture of guaiac resin, containing a trace of copper sulphate solution. Upon approaching this mixture, contained in a porcelain capsule, with a glass rod moistened with hydrocyanic acid, blue lines are formed in the liquid ; upon stirring, the whole solution turns blue.

Compare *Schönbein* and *Pagenstecher's* reaction.

Prollius' solution for extracting cinchona bark (for the determination of alkaloids) is a mixture of 88 p. ether, 8 p. absolute alcohol, and 4 p. water of ammonia.

Purdy's solution for estimating glucose contains 4.15 g. copper sulphate, 10 g. mannite, 20.4 g. caustic potash, 300 ccs. ammonia water (sp. gr. 0.88), 50 g. glycerin, and enough water to make 1 litre. 25 ccs. of this solution are reduced by 0.015 g. grape sugar.

Compare *Fehling's* solution.

Puscher's test for alcohol in ethereal oils. Into the bottom of a test-tube introduce a few drops of the ethereal oil and dust the upper portion of the tube with powdered fuchsin, or introduce the latter by means of a swab of cotton. Upon boiling, the alcohol evaporates first and dissolves the fuchsin to a red solution.

Rafaële's modification of *Spiegler's* reagent (q. v.).

Raspail's reaction for albumens. These are colored red by sugar and concentrated sulphuric acid.

Compare *Schultze's* furfurol reaction.

Reich's reaction for cane sugar. Solutions of cane sugar, when treated with cobalt nitrate solution, yield a violet coloration upon the addition of soda lye. According to *Dupont*, this reaction is not interfered with by glycerin, milk sugar, glucose or invert sugar; however, dextrin and gums should be removed by precipitation with lead acetate or baryta water.

Reichardt's test for arsenic in the urine. 200 ccs. of urine are concentrated with about 2 g. of caustic soda, the residue dissolved in a little water, acidulated with hydrochloric acid, and then tested in a *Marsh's* apparatus.

Reichardt's reaction for nitric acid (brucine reaction). Upon treating a solution of brucine in concentrated sulphuric acid, with a few drops of a solution

containing nitric acid, a rose-red to deep red coloration appears. This reaction takes place even in dilutions of 1:100,000.

Reichert-Meissl's number indicates the number of ccs. of deci-normal sodium or potassium hydroxide solution necessary to neutralize the volatile fatty acids obtained from 5 g. of a fat, when operating according to a definite special method. The *Reichert's* numbers formerly in vogue gave the figures for 2.5 g. of fat and are, therefore, only half as large as the *Reichert-Meissl's* numbers.

Reichl's test for glycerin. Equal parts of glycerin, phenol and sulphuric acid are mixed and heated to 120°. After colling, water is poured upon the brownish-yellow solid mass and ammonia added drop by drop, whereby the mass is dissolved to form a beautiful carmine-red solution.

Reichl-Mikosch's reagent for albumens consists of benzaldehyde and sulphuric acid containing ferric sulphate.

Reinsch's arsenic test. A solution of arsenous or arsenic acid in hydrochloric acid is reduced by metallic copper. A gray coating of copper arsenide is formed upon the metal. Antimony and mercury behave similarly; their absence must, therefore, be proved before the presence of arsenic can be decided upon. This test is also known as *Hager's* empirical arsenic test (kramato method).

Remak's solution for hardening microscopical preparations is a mixture of 50 ccs. aqueous copper sulphate solution (20 p. c.), 50 ccs. alcohol (25°), and 35 drops purified wood vinegar.

Renard's test for peanut-oil depends upon the isolation of arachic acid (melting point 74–75°) by means of the lead salt, which can be separated from lead oleate by extraction with ether. For particulars see Chem. Ztg., 1895, p. 451.

Reuter's test for *p*-amidophenetol in phenacetin. The phenacetin is melted with pure chloral hydrate; if a violet color appears, amidophenetol was present. (Even the purest commercial specimens show a slight rose tint.)

Reynold's test for acetone in the urine. The distillate from the urine is shaken with freshly precipitated mercuric oxide (from mercuric chloride and potassium hydroxide). If acetone was present, the filtrate will contain acetone-mercury in solution and will respond to the tests for mercury.

Rheoch's test for free mineral acids. See *Mohr's* test.

Richardson's reaction for *a*-naphthol. 0.04 g. of naphthol and 0.5 ccs. of normal sodium hydroxide solution are dissolved in 1—2 ccs. of water. Hereto is added a mixture of 0.05 g. sulphanilic acid dissolved in 5 ccs. normal sodium hydroxide solution, and 0.02 g. sodium nitrite dissolved in 5 ccs. normal sulpluric acid. *a*-naphthol under these conditions yields a dark blood-red color, which changes to brown upon the addition of dilute sulphuric acid; *b*-napthol causes only a reddish-yellow color.

Determination of Santonin.—*Pharm. Zeitung*, xlii., 604.

A weighed quantity of santonin powder is first abstracted with ether, the ether is then distilled off and the residue is boiled with milk of lime and filtered. Aluminium acetate is added to the solution which is then boiled and neutralized with magnesium, evaporated to complete dryness and dried after powdering at 105° C. for a couple of hours. The powder obtained is then extracted with ether, this evaporated and the residue weighed as santonin.

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EDITORIAL.

THE JOURNAL OF PHARMACOLOGY has more future than past, but as the father of "Sonny" sagely remarked: "Ef you go on bein' descendants long enough, some day you'll be ancestors."

The JOURNAL OF PHARMACOLOGY is the legitimate descendant of the *Alumni Journal*, and is the duly recognized offspring of the Alumni Association of the College of Pharmacy of the city of New York. During the one year of its existence it has published more than twenty pieces of original work from the college laboratories, receiving its contributions from students, professors and graduates. It has not only served as a medium for such work, but it has been a connecting link between the alumni and the college, reporting all transactions of interest from the one to the other.

The commercial side of the profession is so ably represented by the many pharmaceutical journals of the country that it has been the aim of the JOURNAL OF PHARMACOLOGY to take the standpoint of pure science rather than the business point of view, and it is a refreshing fact to notice that whereas many of our esteemed contemporaries either reprint or translate their scientific articles from the English or foreign reviews, these latter have returned the compliment by reprinting some of the original work done in the laboratories of the College of Pharmacy and published in the JOURNAL.

The JOURNAL OF PHARMACOLOGY deplores its late birth, but recognizes the fact that its lineage is of the best and trusts that as it grows in years and wisdom it will become a fruitful source of enthusiasm to the many more active and broadly educated young men that are connecting themselves with the college and forming a group of investigators in

this country, and that promise to do the first and best work that has yet been put forth from American laboratories.

The next monthly lecture under the auspices of the Lecture Committee of the Alumni Association, will be given on January 12, at 8 P. M., by Dr. W. S. Disbrow. The title is "Medals of Medicine and its Collateral Sciences."

The lecture hall was filled on Monday, Dec. 20th, by an appreciative audience that listened with interest to the lecture by Dr. Geo. C. Diekman, of the College of Pharmacy. His subject, "Ptomains and Leucomains," was skillfully handled, and presented an interesting and comprehensive view of the recent chemical investigations on the subject.

Abstracts and Reviews.

Determination of Indican in Urine.—*Amann, Repertoire de Pharmacie.*

After acidulating with a few drops of sulphuric acid to 20 c.c. of urine, 5 c.c. of chloroform is added, and to this mixture 5 c.c. of the persulphate of soda is added. The whole is then shaken in a test tube—not to such an extent however to break up the chloroform layer. The results show that the indigo formed is found in the layer of chloroform. The water is colored red and according to the intensity of its coloration some idea may be obtained of the amount of skatol products. This method has the advantage of rapidity.

Researches on Chlorophyll.—*Pharm. Zeit. Russ.*, xxxvi., 419.

Stocklasa finds that a great similarity exists between lecithin and chlorophyll, both in constitution and in decomposition products. Chlorophyll cannot be formed without lecithin, while the action of the sun produces both lecithin and chlorophyll. The former accumulates in the leaves, developing phosphorus-containing bodies. Green leaves contain large quantities of phosphoric acid in the form of lecithin and chlorophyll. Stocklasa was unable to obtain the chlorophyllan isolated by Hoppe-Seyler; he obtains chlorophyll by the process for isolating pure lecithin. In this way he obtained a body which he terms chlorolecithin, a blackish-green crystalline mass containing 3.37 of phosphorus. Chlorolecithin was found to contain choline, glycerin, phosphoric acid, and chlorophyllinic acid; the coloring of the substance being due to the latter body. This compound is, however, different from the chlorophyllan isolated by Hoppe-Seyler. After numerous tests the author concluded that the formation of chlorophyll depends on the presence of phosphorus: he also confirms the opinion of Gautier and Molisch that no iron is contained in chlorophyll or chlorolecithin. Iron plays an important part in the constituents of the cell nucleus, however, since it has been ascertained that this structure is not formed without phosphorus and iron, while chlorophyll contains phosphorus only.

Red Spots on Leaves.—*Bull. Soc. Bot. Ital.*, 1897, p. 83.

Sig. G. Mattej has investigated the nature of the red spots which occur on the leaves, petals, and other organs of many plants, species of *Lysimachia*, *Ox-*

alis, *Hypericum*, *Myrsine*, etc., and states that the pigment is composed essentially of a gum-resinous substance colored by a yellowish-red essential oil, its chemical constitution varying with the species. These spots are not, as a rule, found in the earliest stages of development of the organ, and are evidently the results of the transformation of leucites. They are often surrounded by a membrane, and are always imbedded in the parenchyme, and are surrounded by ordinary cells.

Bacteria in Cheese.—*Centralblatt für Bakteriologie*, (*through Nature.*)

Messrs. Russell and Weinzirl have studied the rise and fall of bacteria in cheddar cheese, determinations of the number of bacteria per gramme in American cheddar cheese being made at different stages of the ripening process, while the varieties present were roughly classified under the heads of lactic acid bacteria, gas-producing bacteria, casein-digesting bacteria, and inert bacteria, or those having apparently no effect on casein in milk cultures. In samples of green cheese examined immediately after being removed from the press, a diminution in the numbers of bacteria present was noted as compared with the initial number present in milk. This period of bacterial decline, however, generally lasts but two days, and is followed by a very marked increase in the numbers present later on, so much so that in the course of a few days, generally from eight to twenty, the germ contents may increase many fold. This active bacterial growth is not by any means equally distributed amongst all the varieties of microbes present, but is almost exclusively confined to the lactic acid group of organisms, the gas-producing bacteria as well as the casein-dissolving varieties rapidly disappearing. The relation between this pronounced multiplication of the lactic acid bacteria and the ripening process in cheese is not yet exactly established, although the presumption is that these organisms are mainly responsible for these changes. This presumption is rendered more likely by the fact that Freudenreich, studying Emmenthaler or Swiss cheese, found the same coincidence between ripening and multiplication of lactic acid bacteria, and Lloyd, in his investigations of English cheddar cheese, arrived at the same result and came to a similar conclusion. The maximum period of bacterial development is followed by a period of final decline; in the course of time cheese may become sterile, although an examination of a hard dry skim cheese over two years old demonstrated the presence of a few lactic acid bacteria.

Drugs at Kew.—The completion of the tenth annual volume of the *Kew Bulletin* has made it desirable to publish a detailed index to the whole series, since the increase in the number of volumes has rendered it more difficult to find the information they may contain on any particular subject. The opportunity has been taken to pass in review briefly the more important subjects which have been treated, and this has the more interest as the period covered has been one of more than usual activity in the development of British tropical possessions. Amongst other matters of interest many little-known drugs have been investigated. The seeds of *Sophora secundiflora* have a singular use among the Indians of Mexico, where they are taken as an intoxicant. Half a seed is said to produce exhilaration followed by sleep lasting two or three days (*Kew Bulletin*,

1892, 216). *Derris elliptica*, now growing in the Economic House at Kew, yields the Malayan fish poison known as "Aker Tuber" (*Kew Bulletin*, 1892, 216). From the account given of Natal aloes and of the plants supposed to yield this product (*Kew Bulletin*, 1890, 163), it appears that it differs in some important respects from the more commonly known Cape aloes. The discovery of the plant, also in the Kew collection, yielding the true star anise of commerce is noticed (*Kew Bulletin*, 1888, 173). The manufacture of quinine in India, and the wide distribution at a nominal price of this valuable medicinal agent amongst the natives (*Kew Bulletin*, 1890, 29), is one of the most important services which European rule has rendered to the Indian Empire. Paraguay jaborandi (*Pilocarpus*) is discussed (*Kew Bulletin*, 1891, 179) from materials sent to this country by Her Majesty's *charge d'affaires* at Buenos Ayres in 1881. The origin of myrrh and frankincense is discussed in considerable detail (*Kew Bulletin*, 1896, 86), while the first authentic information respecting the district whence Siam benzoin or gum benjamin of commerce is obtained is the subject of another article (*Kew Bulletin*, 1895, 154). Next to gum benjamin, Siam gamboge is the most interesting of Siamese products (*Kew Bulletin*, 1895, 139). The peculiar Ai camphor prepared in China from a shrubby composite, a species of *Blumea*, is described (with a plate) from information supplied by Dr. Augustine Henry (*Kew Bulletin*, 1895, 275). The plants yielding the leaves known as coca, and the drug cocaine, with their characteristics, are discussed (*Kew Bulletin*, 1889, 1), with the suggestion that a plant long cultivated at Kew (*Erythroxylon coca*, var *novo granatense*) might be suited for cultivation at a lower elevation than the type. The little-known iboga root of the Gaboon and bocca of the Congo, possessing tonic properties, is traced to *Tabernanthe iboga*, Baill. (*Kew Bulletin*, 1895, 37); the tree yielding the ipoh poison of the Malay peninsula is identified with that yielding the upas poison of Java (*Kew Bulletin*, 1891, 24), but the remarkable point is brought out that while, in Java, the upas tree (*Antiaris toxicaria*) furnishes a very effective arrow poison, in the Malay peninsula the juice of what is regarded as an identical species is apparently innocuous, and the defect is remedied by the use of arsenic.

Fluid Extract Horse-Chestnut Seed.—The fluid extract is prepared from the seed of Æsculus hippocastanum, and Arbault (*Rev. de Thérap. méd.-chir.*, No. 5, 1896) believes he has found in this remedy a specific for the pains of hemorrhoids. In twenty-one cases in which it had been used, not once did it fail, and the attacks could even be cut short at their commencement, when it was taken as soon as the first symptoms showed themselves. The remedy appears to exert a direct, intense, vascular-contracting power on the venous circulation of the small pelvis. Its administration causes a mild feeling of warmth in the stomach, unaccompanied by pain, dizziness or constipation. The only disagreeable symptoms noted were the re-establishment of the menses in two women ten days after this stoppage. In cases of excessive hemorrhage, this extract may be combined with fluid extract of hamamelis.

Comparative Value of Antiseptics.—Dr. Th. Bokorny (*Science*, No. CXXXVII, p. 250) gives the results of a study of the antiseptic action of various

substances. A culture-medium of 0.5 per cent. egg albumin or peptone, with 1-10 per cent. potassium phosphate, 2-10 per cent. magnesium sulphate, and a trace of calcium chloride, was infected with the bacteria of decay, and after addition of the substance to be tested, placed for several days in an incubator. Among inorganic compounds silver nitrate and mercuric chloride have about the same value, 0.002 per cent., killing all organisms in two days. The antiseptic limit with silver nitrate is 0.0002 per cent.; with mercuric chloride 0.001 to 0.0002 per cent. Copper sulphate is nearly as active, 0.005 per cent. killing all organisms in twenty-four hours, and 0.001 per cent. preventing decomposition. Zinc sulphate 0.01 per cent. kills imfusoria in eighteen hours, but 0.1 per cent. is not completely antiseptic, while cadmium sulphate toward algæ and infusoria is weaker than the zinc salt, but toward bacteria stronger, 0.02 per cent. being antiseptic. Lead acetate and nitrate in 0.1 per cent. solution only delay decay, while the latter is prevented by the same strength of iron sulphate solution. The fluorids are not strong antiseptics, the limits being for hydrofluoric acid 0.02 per cent., barium fluoride 0.3 per cent., aluminum fluoride 0.1 per cent., calcium fluoride 0.03 per cent., ferric fluoride 0.06 per cent., and magnesium fluoride 0.05 per cent. Ammonium fluoride 0.1 per cent. is without action, but sodium fluoride 0.1 per cent. is antiseptic; potassium fluoride is rather more active.

Dika Fat.—Odila or dika fat is a vegetable fat, rather extensively used by the natives of the Cameroons district for culinary purposes. It is manufactured from the fruit of the wild native mango. It is somewhat darker in color than palm oil, though of the same consistency. Plantains cooked with dika fat are described as delicious, and indeed the flavor of the fat is most agreeable in the various ways in which it is used in the kitchen. Oils and fats are obtainable in great abundance in Western Africa, a large number of fruits, nuts and other vegetable produce supplying them by easy processes.

Delicacy of Marme's Reagent.—Verven reports experiments to determine the delicacy of Marme's reagent for alkaloids (which consists of 5 grams of cadmium iodide and 10 grams of potassium iodide in water to make 100 c. c.) The suspected solution is acidified with sulphuric acid and one-fifth its volume of reagent added. Pecipitation occurred with atropine, 1 in 1,600; cocaine hydrochlorate, 1 in 16,900; veratine, 1 in 5,400; strychnine, 1 in 19,200; brucine, 1 in 14,600; quinine, 1 in 32,300; conchinine, 1 in 18,400, and aconitine, 1 in 13,7 00.

Formation of Diastase.—Prof. W. Pfeffer has carried out a series of experiments for the purpose of determining the conditions under which diastase is formed in plants. The plants operated on were Penicillium glaucum, Aspergillus niger, and Bacillus megatherium. An increase in the amount of sugar in the nutrient material was found always to have the effect of decreasing the production of diastase, but the same result was not produced when the sugar was replaced by some other carbohydrate, by glycerin, or by tartaric acid. Prof. Pfeffer regards the arrest in the production of diastase as not a purely chemical or physical phenomenon, but as one of irritation exerted on the organism by a solution of sugar of a definite degree of concentration.

Thyroids—Their Use in Other Diseases than Cretinism. — In cretinism the use of thyroids is followed by distinct blood changes. Anemia improves rapidly and when the correct dose has been attained this improvement becomes permanent, says Dr. Koplik in *Arch. Paed.* for July. In the blood the red bloodcells are increased. In the bones the growth is not at all uncertain. The influence of the thyroid on the nervous system and on the subcutaneous structures and their nutriment is striking. The writer then follows by reporting cases of lipomatosis universalis, hydremic anemia, marked simple anemias; these cases being in children.

The treatment in general was for the initial dose, ½ grn. twice daily, and at the end of a week the dose was increased to the same dose thrice daily, then later four times daily, and finally the dose was made 2 grn. daily, and kept up for the entire summer. In conjunction the use of iron was beneficial.

Tincture of Monsonia in Dysentery. —Monsonia, an annual plant belonging to the Geraniaceæ, is commonly used in the treatment of dysentery in South Africa. Dr. J. Maberly, of Birmingham (*Med. Week*, V. p. 132), who was for some time in practice in the Transvaal, near Johannesburg, used this drug with the greatest success in about a hundred cases. The whole plant, including the flower tops of either M. ovata or M. Burkei, was used in the preparation of an alcoholic tincture. The root, however, seems to be very nearly inactive and should not be employed.

Under the influence of this tincture, in doses from 8 to 15 gme. every four or six hours, the symptoms of dysentery improved more rapidly than under any other treatment, more rapidly in particular than with ipecacuanha administered after the Brazilian method. The effects appeared also to be equally good in acute and in chronic cases. Out of ten patients who were suffering from chronic dysentery, nine recovered and one died. This was a child, whose death was the result of coma, coming on in consequence of the extreme weakness produced by the prolonged intestinal affection, the dysentery itself having already been cured by the drug.

Dr. M. found that tincture of monsonia cured acute dysentery, on an average, within two days, chronic dysentery within eight or ten days. This tincture, therefore, appears to exert a specific action on the morbid agent of dysentery. It is also, apparently, a sedative in all abdominal pain, having proved successful in calming, to a considerable extent, the violent pain caused by chronic inflammation of the uterine adnexa.

The Therapeutic Employment of Digitoxin Crystal.—V. Starck (*Munch. med. Woch.*, Jan. 26, 1897) reports a series of fourteen cases in which he has employed digitoxin crystals within the last six months, with a success equal to that reported byAubel, Maslus, Went zel, and Unverricht.

He employed the drug in the form of tablets containing about 1-256 of a grn. (¼ milligram) as supplied by the manufacturers. The fourteen cases comprised ten cases of valvular failure, two of myocarditis, one of fatty heart, and one of arterio-sclerosis with passive congestion of the kidney. The tablets were well borne in all cases, and there were no symptoms of irritation.

In the case of fatty degeneration the digitoxin had no effect. In one of the

cases of myocarditis the effect was transient, while in a second after repeated attempts it produced good results where all other means had failed. In cases of valvular insufficiency the action began four or five honrs after administration. In the case of arterio-sclerosis with passive congestion of the kidneys the result was better, especially as regards the diuresis, than with any infusion of digitalis. In one case of mitral stenosis, after eight doses had been administered in three days, marked symptoms of digitalis-intoxication were shown, the pulse falling to forty-six beats per minute. By the use of camphor-injections the patient soon rallied, recovering completely in four days, was enabled to leave his bed, and remained well for three months afterward.

The Preservation of Ether.—The loss caused by the evaporation of ether from unsealed containers during hot weather, and in shops that are kept very warm in winter, amounts to quite a neat little sum in the course of a year. It can be prevented, to a certain extent, by the following ingenious contrivance (Nat. Dr.): Fill your container nearly full of ether, and then pour in sufficient glycerin to bring the surface of the ether nearly to the bottom of the stopper. Insert the latter carefully, and with a piece of twine of sufficient length suspend the bottle neck downward, from a nail or other support, letting the cord pass over the stopper and take a turn around the body of the bottle from each side so that it will hang perpendicularly and safely. The glycerin, being heaviest, falls down and fills the neck of the bottle, sealing the latter hermetically. When required for use the glycerin dropping to the bottom allows the ether to be poured out, if care be used, almost to the last drop. Of course the neck should be carefully wiped before poring.

Peronin Therapeutically.—Its action has been studied by Dr. S. Nowak (*Therap. Woch.*, No. 21, 1897) in 18 cases, comprising ten of pulmonary tuberculosis in the stage of infiltration and cavern-formation, four of chronic bronchitis and pulmonary emphysema, three of acute bronchitis, and one of capillary bronchitis. The result of these investigations showed that in all of these cases the cough, irrespective of the cause or complaïnt, became less frequent and intense, sleep being thereby rendered easier; it became drier, however, expectoration being rendered more difficult. By-effects, such as headache, lassitude, and drowsiness were never observed. At times patients complained of a burning sensation in the bronchi, and of copious perspiration. The writer found that peronin is best given in solution or in pill-form. Doses of 0.01 gme. were found to be too small at times, but as no by-effect occurs these may be increased to 0.05 gme. single, 0.1 and 0.15 gme. for daily dose. It possesses an advantage in that it may be given for a long time, there being no tendency to forming a habit, as in the case of morphine.

Dr. Jakob Munk (*Aerzt. Centr. Anzeiger*, No. 22, 1897) has also experimented with peronin, and states, as a result of his investigations, that the remedy given to adults is doses of 0.02 gme. causes no untoward effects, indisposition, or drowsiness, but acts as an analgesic and checks cough. Doses of 0.04 gme. yield a quiet night's sleep, even in cases where morphine and codeine were inactive and without any by-effects. It is easily borne by the most debilitated patients. The writer records the case of an epileptic girl who suffered from frequent attacks of frenzy, and on which peronin had an immediately calmative effect. It all recent cases the writer employed peronin exclusively wherever morphine or codeine were indicated, and with uniformly good results. The dose of 0.02 gme. was repeated three times daily.

A Bacterium which Lives in Alcohol.—Mr. and Mrs. V. A. Veley, *Nature*, note the deterioration recently observed in Demerara rum. They obtained samples direct from a bonded warehouse, which they found to contain 74.6 per cent. of alcohol by weight, and on microscopical examination of a sediment at the bottom of the samples found it to consist of chains of small cocci. After the spirit had been kept for some days the cocci were seen to be surrounded with a gelatinous envelope, and after a further interval of time the cocci were found disseminated throughout the liquid, and were rapidly developing and multiplying. The micro-organism belongs to the *Coccaceac* and the authors regard it as a new species; the observation of the existence and multiplication of any micro-organism in a spirit of such alcoholic strength appears to be quite novel.

BOOK REVIEWS.

The Pharmacist at Work. W. C. ALPERS, Philadelphia. (*J. P. Lippincott & Co., 1898, pp. ix.–326.*)

The many readers of Mr. Alpers' entertaining and instructive series of papers under the above title, which first appeared in Merck's Report of 1895–96, will be pleased to learn of their issue, revised and enlarged, in book form. While not intended to encroach on the province of the more pretentious works on the theory and practice of pharmacy, this very readable discussion of every day occurrences in a modern pharmacy will commend itself to all classes of pharmaceutical workers as showing in a happy and forceful manner the interdependence of theoretical knowledge and practical experience, and as being an effort toward the elevation of pharmacy to its due rank among the professions. Systematic outlines of study are laid down for the beginner. The student will find the discussion of the official preparations and the chapters on the metric system and the subject of alligation of especial assistance, while the practical worker may learn of many useful and time saving devices that will facilitate his labors. Subjects of interest more particularly to the proprietor are also treated; advertising methods, the preservation of the *entente cordiale* between pharmacist and physician, and, perhaps, most important of all, the attitude of the preceptor toward his apprentice and the part he plays in infusing into him the enthusiasm and love for his profession which alone can insure success.

The book is excellently printed and bound, although the absence of an index is to be regretted.

Prof Wm. Trelease (*Trans. St. Louis Acad. Sci.*, VII. 18, 493) describes "An Universal Phyto-benzoar" formed in the stomach of a bull in the neighborhood of San Luis Potosi, Mexico, and consisting of the fine barbed hair-like spines from the pulvini of the flat-jointed Opuntias of the region, upon which the animal had been for some time feeding. Various species of cactus are there eaten by stock during periods of food scarcity. Many stockmen partially roast them before feeding, thus destroying the most of the fine spines. Others avoid this on the ground that it increases the natural purgative properties of the fodder. The animal in question had roamed wild and eaten the Opuntias voluntarily. The balls are described as being perfectly spherical, measuring 3½ inches in diameter and weighing 7½ ounces.

H. H. R.

Alumni, College and Class Notes.

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ALUMNI NOTES.

ANNUAL DINNER.

The Annual Dinner of the Alumni Association was a complete success, not alone from a social standpoint, but also in point of numbers, and as a satisfier of a hungry feeling, as a glance at the menu will show.

MENU.
Blue Points.
Cream of Celery, aux Croûtons.
Olives. Celery. Radishes.
Filet de Sole, au Vinblanc.
Potatoes Parisienne.
Filet de Boeuf, Piqué, a la Financière.
Flagolets. Artichokes Farcis.
Sorbet.
Roast Quail on Toast. Celery Mayonaise.
Fancy Ice Cream.
Cake. Assorted Fruits.
Crackers Cheese.
Café Noir.

It was held at the Arena, on Wednesday evening, December 15th, at 9 P. M., and when President Searles gave the signal, between sixty and seventy gentlemen sat down ready for anything that came along in the eating, drinking and speaking line.

For some time nothing was heard but the clashing of knives and forks, which was only interrupted by an occasional friendly sally and the popping of corks.

As the coffee was being served, that prince of presiding officers, A. C. Searles, arose and rapped for order, and in a befitting manner introduced Mr. Ewen McIntyre amid a storm of applause. It was a great night for Mr. McIntyre, as he reminded the gentlemen present that it was just about fifty years ago that he had graduated from the New York College of Pharmacy, and in his speech he brought out several very interesting points about pharmacy during the last half century, which were greatly appreciated by those present.

The next speaker called upon was genial Prof. Coblentz, whose comments upon the differences between the German and the American pharmacist were vociferously received.

Unquestionably the hit of the evening was made by Prof. John Oehler, who in his own inimitable way told the diners that Santa Claus had visited him in his study and had given him presents for the faculty and the prominent members of the Alumni. The presents were distributed by President Searles, and as each one received and opened his package, much laughter and applause followed, as each present was indicative of some hobby which the recipient was noted for. Prof. Oehler also proved himself to be a poet of no mean ability, as with each gift a neatly typewritten poem was given, characteristic of the gift or gentleman receiving it.

Mr. P. J. MacMahon spoke in his usual happy manner, choosing as his subject a history of our college. It was both interesting and enjoyable.

Among the other speakers of the evening were the following: Dr. Pfingsten, of the German Apothecaries Association; Mr. J. B. Russell; Dr. Lovis, of Seabury and Johnson; Mr. Sayre; Prof. Parsons, of the Pharmaceutical Era; Mr P. J. Keenan, of the American Druggist; Mr. C. F. Doherr, President of the Druggists' League for Shorter Hours; Dr. Geo. C. Diekman; Mr. Wm. M. Davis, of Brooklyn, and Mr. James Rogers, of Johnson and Johnson.

Among others who were present the following might be mentioned: Secretary Wm. A. Hoburg, Jr., Dr. Harry B. Ferguson, Dr. R. Gies, First Vice-President Harold, Treasurer Chas. S. Erb, Second Vice-President Julius Tannenbaum, Third Vice-President J. Glassford, Nelson S. Kirk, Fred Borggreve, Dr. P. L. Eckhard, Dr. C. F. Pfister, Aug. H. Hall, Chas. A. Johnson, D. L. Cameron, Carl Schnackenberg, Dr. Herman Graeser, Dr. Henry Kreuder, Dr. H. Herzfeld, Dr. O. Mayer, Jos. Ruprecht, H. Kantrowitz, Edward Uhe, Dr. Chas. H. Bjorkwall, J. Gallagher, Prof. M. R. Mandelbaum, Jos. Aquarro, M. Thurlow, E. Pimme, E. E. Fisher, C. VanBuren, C. J. Beck, E. P. Wood, P. Gregorius, E. F. Miller, L. Eickwort, Jr., L. G. B. Erb, N. Cohen, G. L. Hager, G. Evans, P. Schaul, Geo. J. Dürr, L. G. Schanikow, R. L. Darmstadt, Sergt. P. M. Davies, L. W. De Zeller, Wm. Brainerd, F. Woolston, P. Shaughnessey, Dr. L. W. Geissler, Jr., C. O. Grube.

R. G.

'93 NOTES.

WE spent two weeks of our short and checkered life at Sing Sing recently. (Short term prisoner.) While there we met a fat, slick-looking country politician who, on closer inspection, proved to be "Chancey" Terwilliger. He is located in that romantic town, and if external appearances go for anything he is being well used by the world. If any of you happen to run across him, ask him how Ada of cake walk fame is.

ANOTHER representative of '93 who is anchored there is Kip. He was glad to see me and all that sort of thing, but had to hustle to catch a train to Peekskill. He rushes up there Wednesdays and Sundays, the gossips say. Wonder has that anything to do with what he whispered confidentially to me about a sweet, dear little girl, soon to be Mrs. K.

'94 NOTES.

"HAPPY New Year!"

LOUIS G. SCHARNIKOW, who was a junior with us, is thinking seriously of taking a course in dentistry. He is at present with Schroter on Columbus avenue.

AS USUAL our class was well represented at the Alumni dinner. During the festivities I noticed Dr. Kreuder, Hon. H. A. Herold, Sergeant Davies, Messrs. Kirk, Erb, and Grube. President Searles and Dr. Oehler vied with one another for honors.

"ALUMNI Ball, February 9th; box office now open. How many."

'97 NOTES.

A. J. PALMER, one of the Southern Club, is with his father, Messrs. Palmer & Kinsbrew, wholesale and retail apothecaries, of Athens, Ga. Brother Palmer proved himself a great honor to his class at an examination held in the early part of November before the Georgia State Board. He carried off first honors, winning first prize. In speaking of the same, he remarks: "I am proud to say, both for myself and for the able professors who taught me, that I made the highest average." Showing his true blue for his "Alma Mater."

OH, Nickerson is with the Riker Drug Co., Sixth avenue and Twenty-third street, looking as ever prosperous and well. He says he cannot imagine where all the fellows have gone to. I wonder whether he ever goes to Keith's, Proctor's on any week day afternoon. At a performance I witnessed recently at Proctor's, Twenty-third street, were present, Milne, Peterson, Koch and Devine, certainly quite a few. Milne was seen in a front seat—living pictures, you know.

THE illustrious son of his father, Orrin M. Morey, has been discovered in Brooklyn.

BARDOES, "he who would a mascot be," is in Sixth avenue, corner Sixteenth street, with the Hansen Pharmacy.

THE engagement is announced of Brother Henry Schreiner to Miss Emelia Heine, of Yonkers, N. Y. Accept our best wishes for the future, and learn to forget the Olympia Theatre and Becker and you certainly will be happy.

THE very latest "Teddy Kaiser" is still working, and says he expects to—"for the winter."

HUBBARD has joined the Y. M. C. A. Fellows, a wonderful change has overcome him. Real nice and good, you know.

WHITE says she looked me into the eyes and says: "Willie, dear boy, why don't you take some hot, real hot, coffee, you look so cold?" Christmas is coming, you know, fellows.

ROBERTS is working. Or, as he would say, is employing his leisure moments, in a pharmacy at Rome, N. Y.

AND "Freddy," Freddy Preston, the much-famed member of the Pharmaceutical Willis Flats, has also been heard from. This time to remember the class picture fund. More than a great many of the members have.

INGHAM, much famed for his hard study and pluck winner of the bronze medal, pet of the girls of our class, pet of his landlady, is now at his old home, Anedia, R. I., doing time in a pharmacy.

THE highly distinguished lady of our class is now living in Brooklyn for the holidays, I am told.

WITH the coming festivities I wish you all a Merry Xmas and a Happy New Year and hope you will not forget the class picture fund and remit your donations at your earliest.

SCHLOTTERBECK is a son of leisure moments now.

MR. MIEROW, PH.G., is a nicely engraved card's reading on a scale in the chemical laboratory. Next it will be P. D. Oh, Mierow you're a winner.

"KID HAGER says he misses our class outings very much and only wishes they would return." Next!

DR. G. FERGUSON, D. V. S., PH.G., is now with the Messrs. Caswell, Massey & Co., Twenty-fifth street, Fifth avenue and Broadway.

'98 NOTES.

"Lo! The poor (Mexican) Indian" according to Dr. Rusby he chews intoxicating drugs and goes on the most horrible jags, and alas, has no one to teach him the evils of his ways. During the recital of this terrible state of affairs we saw Mansfield and Hildebrand hold up their hands in holy horror. Why not get up a subscription and send some missionaries to these poor wretches (the Indians). We are sure the boys would subscribe liberally.

WE think Tye is well named.

IF your name is misspelled don't blame me. It's the printers fault. If you answered a quiz correctly and I failed to mention it, accept my humblest apology. If I've said anything I'm sorry for, I'm glad of it. So don't kick any more.

THE Alumni dinner of this year was a decided success. The class of '98 had three representatives present.

WE hear several of the members humming that catchy little air that runs "Mr. Justice turn me loose, I've no money but I've a good excuse, etc." Some of those new airs are very catchy.

THE basement reminds one of Monte Carlo. The fortunes won or lost in a single noon hour are something appalling. One man lost seven cents to-day. Be careful boys. A gamblers life is a terrible life to lead.

JONES and Sears have given up housekeeping during the holidays.

"WHEN a tramp is treated to a dose of CO^2 he wakes up to find himself dead."

WHERE will you be after examinations? Oh ye frequenters of the Klondyke Pool Parlor.

LIEBSTETTER carries chalk in his pockets and always has his ears open for a challenge.

SCOTT says strikes are easy but a poodle—never.

THE athletic team is away on a Christmas vacation. After New Year's calls are over they will go into training once more.

RUMOR says that Miles has gone to housekeeping and that incidentally he still has his eyes on that prize. Watch him.

A CLASS band has been formed which, as nearly as can be learned is made up as follows: Schaefer, violin; Alpers, violin; Crain, bass-viola; Harrison, flute; Seltman, kazoo; Wendler, accordion; Mansfield, tin-can; Holcomb, Jewsharp. "There are others."

'99 NOTES.

MICHEL is the unapproachable king of inventors, Did he not invent the bunches of flowers in one of the pharmacognosy lectures? Speaking about pharmacognosy: We are greatly indebted to Prof. Rusby for his careful elementary teachings and instructions he gave us in his department. To our sorrow we parted with him last week for the rest of this year. We shall not forget his kindness to one and all.

JACKSON, the connoisseur of good dinners, and Ward of cigars, *15c. straight*.

PRESIDENT JOHNSTON promised to call our first class meeting right after the holidays. It will be a rouser.

PROFESSOR—What is a baroscope.

Student—What is—is—is the dose.

Professor (Changing his student)—Probably, Mr. O. N. Frankfurter will answer.

Student (Mr. O. N. Frankfurter)—I—I—I—I d—di—didn't understand that que—que—question.

Professor—Never mind the question. Tell me something about it.

Student—I don't know its atomic weight.

Professor—Well, what is weight?

Student (Mr. O. N. Frankfurter)—Well, er—er—it—it—it is centerpart of gravity, minus 2 molecules of H_2O.

Professor—Very good: *aber nit* (???) You are very good at guessing. (You beat the band.)

CLARA F. EHLIN.

SECTION III.

ASK Hill about the composition of air. He has some very interesting facts to tell concerning it.

THERE are two college men in Section III. White from the University of Mississippi and Wells from Dartmouth College.

THE Heavenly Twins { Kirchstein, Lucina.

BY the time Gould gets his Ph. G. he will certainly have earned it. He commutes every day and his train leaves 5:30 A. M.

LUCINE—Oh, yes; I knowed. I knowed it already. Only I don't knowed it so quick.

SOME say that Davidson, our "little angel," smokes. Ask him about it. Also if he had a phenomenal voice when "young." How aged he must be at the present time!

CADMUS believes in taking good exercise just before quiz, both vocally and physically. Woe to those who happen to be in the way of his empty boxes, beans, paper balls, etc.

WANTED—A position in some burlesque company. Theatrical troupes will do well by corresponding with me at once.

MAURICE E. DAVIDSON.

N. Y. C. P. C. C.

President, Nelson S. Kirk.
Vice-President, Rudolph Gies.
Sec'y-Treas., Capt. L. G. B. Erb, 539 E. 88th St.
Lieutenant, Harry B. Ferguson.
Color Bearer, Otto N. Frankfurter.
Annual dues, $1.00, payable quarterly.
No initiation fee.

THE first smoker of the season will be held in the Alumni Room on Wednesday evening, January 26. Prizes will be awarded to the best story tellers. Aspirants will therefore take notice, as every guest will be eligible in the contest. Students are cordially invited to attend.

SCHEDULED runs have been discontinued until further notice. This, however, does not deter the majority of our members from "braving the elements."

AT the Alumni dinner, Chas. S. Erb was presented with a beautiful miniature hat covered handsomely with the college colors, by Santa Claus A very appropriate gift for a treasurer. Rumor has it that Capt. Erb is negotiating for a loan of it to facilitate matters, now that the first quarterly dues are payable.

KIRK was also remembered by the Old Gentleman on the above mentioned occasion. He received a "chainless safety" of the 2 cents per card, bargain days only, variety.

A LARGE carriage builder is authority for the statement, that the wheel is simply the stepping stone to an equine equipage. We should therefore look forward to the day when we are to "follow the horses."

IT IS a deplorable fact that the department stores will have control of many of the better known wheels next season; several of them are already booking orders for '98 models, listed at $100, for prices ranging from $85 to $49.99.

FROM the present outlook I should say the chainless model will not be as popular as was anticipated, for at least another season. Gear cases will be considerably lighter and much used, particularly by tourists.

SCORCHER.

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The Journal of Pharmacology

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The
Journal of Pharmacology,

Devoted to the Advances Made in Materia Medica in its Branches. Pharmacy, Pharmacognosy, Chemistry, Botany, Pharmaco-Dynamics, Therapeutics and Toxicology.

Published by the Alumni Association of the College of Pharmacy of the City of New York.

VOL. V. NEW YORK, FEBRUARY, 1898. NO. 2.

THE SPECIES, DISTRIBUTION AND HABITS OE VANILLA PLANTS, AND THE CULTIVATION AND CURING OF VANILLA.

BY H. H. RUSHY, M.D.

The genus Vanilla was established by Plumier in Miller's Gardener's Dictionary, Edition 6, in the year 1752. The genus has been enlarged from time to time, until we find the Index Kewensis, in 1896, recognizing 33 species. Besides these recognized species, the Index cites 23 additional names which it regards as synonyms. As in the case of most large genera, there is a wide difference of opinion as to the limitations of the species, their number being thus greater or less according to different authorities. Engler and Prantl, in the "Pflanzenfamilien," allow but 20, which is also the number allowed by Bentham and Hooker in the "Genera Plantarum." This doubt as to specific boundaries extends even to those of the improved and cultivated species V. planifolia, there being a wide difference of opinion regarding half a dozen forms, as to whether they are distinct species or mere varieties of this one.

The genus is peculiar among flowering plants for its exceedingly wide distribution, nearly all parts of the tropical world possessing their representatives.

In the New World we have 18 species; 3 from Mexico, 5 from the West Indies, 2 from Guiana, 3 from Brazil, 1 each from New Granada and Equador and 3 from Peru. This list may have to be extended by the addition of one which I have collected in Bolivia, or this may turn out to be one of those already known in Peru. In the Old World there are 15 species, 4 from Tropical Africa, 3 from the East Indies, 2 from Java, and 1 each from Ceylon, Sumatra, Bourbon, the Seychelles, the Philippines and the Malay Peninsula.

There seems to be no precise record as to whether or not all of these species yield fragrant fruits, capable of use as Vanillas, but it is certain that the larger part of them do so. Neither is it certain that there is not among them some other one or more species, which, by cultivation and improvement, might be made to yield a vanilla equal or superior to that now yielded by the V. planifolia and its varieties. The fact that the use of vanilla dates back to prehistoric times leaves us in doubt as to whether the quality of this fruit, as known at present, may not have been the result of improvement by methods of cultivation of a product which in a wild state was more or less inferior. Certainly, the field for experiment in the way of cultivation and hybridization of species at present uncultivated is most attractive.

Although vanilla is not obtained for economic purposes, so far as known, from any other orchids than those of the genus Vanilla, we are by no means certain that this may not result in the future. I have collected in the Andes representatives of a distinct genus, Sobralia, very closely related to Vanilla, the pod of which develops a strong vanilla-like odor upon maturity.

The flowers of an orchid growing in Switzerland have a strong odor of vanilla, and have been found to yield considerable vanillin.

As regards the production of fruits for commercial purposes from the wild plants, it may be said that it reaches very considerable proportions. Even among the Indians of Bolivia I have seen the fruit, of a species unknown to me, collected and traded in, each fruit bringing about 6 reals, equal to some .35 of our money. I have also collected vanilla in a wild state in Venezuela, but there was no one of whom I could inquire as to whether it yielded a useful fruit. Passing out of the reach of such uncivilized districts, we find that considerable quantities are produced without cultivation, and presumably from native species, in various tropical countries.

It is, however, the V. planifolia which is chiefly concerned in collection. This species is very widely cultivated, the principal regions being in Mexico and Bourbon, or Reunion Island. The West Indies, Java, Mauritius, Ceylon, the Fijis and the Straits Settlements also yield important supplies. Good scented fruits have been produced in European hothouses, but, of course, not upon a commercial scale.

The methods of cultivation differ widely in the different regions, but are all based upon certain principles deduced from the study of the habits of the plant in its wild state. Its history in a state of nature is as follows:—It inhabits the richest form of forest land, always completely protected from salt sea breezes, the crevices on a rocky hillside being one of its favorite haunts. It is of terrestrial growth, quickly climbing some adjacent tree trunk. Although it commonly makes a few turns around the

trunk, its chief support is derived from the numerous roots which it affixes to the trunk. It ascends to the height of many yards, and then spreads out to a considerable distance over such horizontal supports as it may encounter. The presence of these fixation roots and the fact that it survives for a considerable period after its earth connection has been severed have suggested the idea that it is parasitic or epiphytic, or both. It is not clear just what are the relative degrees of importance of its aërial and terrestrial nutrition, but it is pretty clearly established, especially by the observations of Mr. Charles E. Hires, of Philadelphia, that it cannot long survive after its earth-connection is severed, unless it is able, as is usually the case, to drop down secondary aërial roots, and by this means to establish again a terrestrial support. At the same time we are not entirely without testimony to the continued existence of plants after the decay of their basal portions, and with no other attachment than to the supporting tree. Like most plants of its class, it is fleshy and succulent, and well able to resist accidents of this kind. Its branches readily take root if brought into contact with the soil, and this habit is taken advantage of in its artificial propagation by cuttings. Its stem is as thick as the finger, and its leaves are large, oblong, thick and fleshy and very numerous upon the horizontal branches, which are exposed to the light and air. It is these exposed leafy branches, the growth of that year, which constitute the sole flower and fruit-producing portion. There appears to be a very narrowly limited admixture of light and shade which affords the most favorable conditions for flowering, pollination and perfection of the fruit. A lesser proportion of shade will often make the plant thrive better, but will affect adversely its production of fruit. Too much shade, on the other hand, will often result in subjecting the plant itself to destructive fungus disease.

The flowers are born in axillary racemes of some 15 to 20, and they are of a pale greenish white or cream-color and pleasantly fragrant. Nature has taken special care that the flowers shall not be self-pollinated, as she has interposed a well-developed blade of tissue, the labellum, between the pollen and the stigma, preventing all natural contact between them, and causing them to depend for their pollination upon the visits of insects, this mode invariably resulting in cross-pollination. This fact renders it quite certain that the constant introduction of new vital elements from other plants is necessary for the well-being of the species and leads to the inference that it is only a question of time when the habit of propagating exclusively by cuttings will result in serious vital deterioration, as has resulted with the sugar-cane, and necessitate the renewal of the stock from carefully produced seedlings. It has been ascertained that, due either to a scarcity of the necessary insects or from the action of some obscure

law, only about one on an average, of the 40 flowers ordinarily produced upon a branch of one or two feet in length, will become pollinated, but that, if artificially pollinated, nearly all of these may be made to yield fruits, although such a prolific yield as this would be very bad for the crop and for the plants. Sometimes a dozen or more fruits will mature upon a single raceme. They will then vary greatly in length—from 5 to 10 inches—and from ½ to ¾ inch in diameter. Taken as they run, they will weigh from 25 to 35 to the pound in the fresh condition. After curing, their diameter will be reduced by nearly ¾ and their weight by about ½.

The bright, green fruit, commonly called a bean, is structurally triquetrous, but two of the sides are so far rounded as to make it appear nearly terete, with one flat side. The top is contracted and then again slightly expanded into a little disk. Its growth ceases many weeks before its maturity. When ripe, it turns first yellowish, then brownish, and if left upon the plant, will split into three parts, and a thick fragrant viscid juice will be exuded. It is just before they begin to turn brown that the fruits should be gathered. If left longer, they will usually split in the drying process, thus seriously affecting the value of the crop. At this time the characteristic ordor is not yet developed. It will develop if the fruit is left upon the plant, though to a less degree than when artificially cured.

The origin of the use of the vanilla bean, "Bainillo" as it is called throughout tropical America, and, for aught that we know for certainty, its cultivation, is lost in antiquity. It was found in use by the native Mexicans when the country was discovered. They used it for mixing with and flavoring their chocolate, and it was for this that it was introduced abroad. It was only after a long time that it began to be used for flavoring other substances, and only within quite recent times that its present broad field of utility has been developed.

In citing the chief facts in regard to the cultivation of vanilla, reference is made, unless otherwise stated, to the industry as it exists in Mexico, where the conditions are the natural ones of the original home of the plant. The large number of commercial grades depends in part only upon differences in the characteristics of the different beans, as determined by the sorting process. A more important difference is caused by the varieties of the vine which produces them. These are five in number, known respectively as "vanilla coriente," meaning regular or current vanilla: "V. sylvestris," meaning wild vanilla: "V. mestiza," meaning medium vanilla; "V. puerca, meaning hog vanilla, and "vanillon,"* meaning big vanilla. It will be observed that these names bear no botanical significance, being only native names used to characterize the quality or condition of the plant, and

* The term "vanillon," as it is used commercially in this market, refers to a different article, a product of Bourbon.

thus of its product. All except the last apparently proceed from varieties or states of the V. planifolia. The exception, vanillon, is the product of V. pompona, a distinct native species. This bean is much shorter, twice as thick, looks like a banana and has a pleasant, fruity flavor, on account of which it is eaten. It does not often get to the market. It thus appears that the vanilla fruit is edible by man, and is presumably to be regarded as a food-fruit for animals, a consideration which has an important bearing upon any inquiries which we may institute as to the vegetable physiology of the fragrant principle, which can hardly be regarded as a provision to attract pollinating insects, but which may possibly be an influence in procuring dissemination.

The cultivated plants are trained to native living trees. Much care is necessary in selecting the sort of tree for this purpose, in order to secure just the right degree of shade. Besides this, there are many ideas prevalent among the cultivators, most of them probably fallacious, regarding special influences which the supporting tree may have upon the growth of the plant. At Reunion artificial shade is employed.

As has already been stated, the crop is very greatly increased by artificial pollination of the flowers. Most planters believe it best to pollinate but two or three flowers of each raceme, though some believe in pollinating five or six of them. At Reunion, and in some other localities, there is a complete absence of the necessary insects, and all pollination must be artificially performed. In such cases the mode of training the vines is modified by considerations of convenience in reaching the flowers. The pollinating process is very simple, and is rapidly performed. The pollen, which is granular in form, is situated directly above the stigma and scarcely a line distant from it. There is interposed between them, however, a little blade of tissue, which perfectly separates them. Artificial pollination consists in holding the flower with the left hand, running a splinter of wood or bamboo underneath this separating partition, elevating and turning it backward, and at the same time pressing the upper portion of the flower, bearing the pollen, downward upon the stigma with the finger of the left hand.

The plant blooms in March, April and May, and the fruit should be gathered in the following January or February. Unfortunately, the habit prevails in Mexico of stealing the fruit before it is harvested by the proper owner. This leads to a state of rivalry among the different sets of thieves and the owner of the plantation as to who shall be, figuratively and literally speaking, the first in the field. As a result, a large part of the crop is harvested some two or three months before the proper season, and before it is in a condition to develop anything like its possible percentage of active constituent. A well-matured fruit, if also well cured, should become of a beautiful silvery white color, due to a crust of fine crystals which develop

upon it. This will not occur in the case of a fruit prematurely gathered. (*Fide* Hires.) Very few raisers of vanilla cure their crop, this being a separate industry, requiring great experience, judgment and care, being restricted to the hands of a few persons and yielding a great profit. The curers purchase their beans from the producers. In curing, the fruits are placed between woollen blankets in a sweating-box and left there 36 hours. The exuded moisture has then to be very carefully dried off in the mid-day sun, or, if the weather is bad, in ovens. This portion of the process is of the most critical character imaginable. It is said that overexposure of the fruits for even a small portion of an hour may result in a loss of weight extending to one pound per thousand beans. On the other hand, an under-exposure is likely to result in the moulding of the fruit, this frequently taking place after it is packed, so that the packer is ignorant thereof, and unable to take any measures to prevent it. After thus drying, the fruits are again sweated and again dried, this process being repeated as often as necessary until the fruits are quite black, and until the judgment, born of experience, teaches that they are in a suitable condition for being packed. The complete process of curing requires some three or four months. This curing process varies greatly in different countries, and doubtless great improvements in it still remain to be discovered. In Bourbon they go through a preliminary sweating by exposure in tins to a steaming atmosphere for a day. They are then carefully dried in the air for three or four days, indirectly exposed to the sun; after which they are placed in air-tight boxes with trays of calcium chloride, for nearly a month, thus completing the curing process.

Success has been attained by experiments consisting in immersing them for a time in alcohol, in the manner in which tonka beans are treated. In Guiana they are buried in ashes and left until they begin to shrivel, and then afterward painted with olive oil.

In Peru they are dipped into boiling water, dried for 20 days, and then painted with castor oil.

With the details of the sorting and packing process I have not time to deal. Twenty-one distinct lengths are recognized by the Mexican traders. The United States Consul at Vera Cruz says that a stem will yield about three pounds of dried fruit—¼ of it first class, 1-3 second class, the remainder third class.

Vanilla packers are liable to certain peculiar accidents. Owing to the peculiar strain brought o bear upon the muscles of the hand in holding the bundle which is being made up, muscular cramps are developed, and the bundlers feel obliged to rest for four or five days after having worked for that length of time.

The beans are said by Mr. Hamilton, of the house of David E. Greene,

to be poisonous to about 2-3 of those who handle them, the effects extending only to those parts of the body which are exposed to contact with the fruit. Much discussion has taken place in relation to the nature and origin of this poisoning, which takes the form of a fine rash, something like that produced by our poison ivy. It is impossible to discuss this question here, but I may say that it has seemed to me, after all that I have read in relation to it, that this is most likely due to the numerous needle-like crystals of calcium oxalate which exist in the bean, than to any other cause.

THE MICROSCOPICAL CHARACTERS OF VANILLA.

By Smith Ely Jelliffe, M.D.

STRUCTURE OF THE FRUIT.

In general it may be said that the different varieties of the vanilla fruit have an analogous structure. The form we have here is about 25 cm. long, about 10 mm. wide and 6 mm. thick. The color is a rich dark brown, and it has an oily to resinous feel. It is longitudinally wrinkled and covered with a whitish crystalline deposit of vanillin.

A transverse section shows that the fruit is elliptical, and the moderately thick walls enclose an irregular triangular cavity, into which several rib-like processes extend. These are the placentae, and support the fine black seeds, which are very numerous. Each placenta is two-ranked. The interior of the cavity of the ovary is filled with minute papillae, to be mentioned later under microscopical considerations.

The external surface of the fruit is the epicarp, which is composed of thick-walled regular cells, disposed in a single row. Beneath this the tissues are very thin-walled and lax, containing considerable amounts of an oily substance with the characteristic odor of vanillin, and also containing a large number of fine acicular crystals of calcium oxalate. These are in general larger than the crystals found on the exterior of the fruit. The polygonal cells of the mesocarp are finely pitted in the main, but a number of them, especially near the periphery, are irregularly marked.

In the mesophyll are the fibro-vascular bundles. These are irregularly scattered, the external ones being somewhat radially disposed, while those further in are not infrequently tangentially arranged. The bundles are loose and lax, and are built on the concentric type. In the centre of the bundle the fibres and sieve-tubes are found. These are surrounded by a number of ducts, which are usually spiral in type, and sometimes interspersed with annular ducts. Irregular resinous masses and prisms of vanillin may be found in the tissues of the mesophyll.

The innermost layer of the mesocarp is made of smooth, slightly flat-

tened cells, which bear a single row of unicellular papillose hairs, which project into the central cavity. These hairs have the interesting function of secreting the oily and resinous substances which elaborate the vanillin.

A few words upon the microscopical identification of false crystalline structures on the outside of the fruit. Unscrupulous dealers often use benzoic acid to make a false appearance of vanillin. It is to be distinguished from the real article by the fact that its crystals are flattened and rhomboidal, whereas the crystals of vanillin are usually acicular and stand out, as a rule, at right angles to the surface of the fruit.

THE MOULDS UPON THE FRUIT.

A beautiful specimen of the fruits was given to me by Mr. Henning which showed a marked development of mould on the inside. Fragments of this mouldy fruit were planted upon gelatin and nutrient agar-agar with the following results: The principal mould found was " Aspergillus repens"; another form was the "Mucor circinelloides." The first of these moulds is extremely common over the civilized world. The second is a form that has been found by me in the air of this city, but it is extremely rare. In Europe it is reported much more frequently. The characters of these moulds can be seen by consulting the JOURNAL OF PHARMACOLOGY for November, 1897. A number of bacteria were also obtained, but these were in all probability from the air, and not deserving of special mention.

THE CHEMISTRY OF VANILLIN.

By VIRGIL COBLENTZ, Ph.D.

The odorous properties of the vanilla bean reside in the crystalline principle vanillin and a minute quantity of a balsam-like substance which is found in the seed. As is well known, the odorous principles are not well developed until during the curing process. It is then evident that there pre-exists in this fruit a complex organic body, which undergoes hydrolysis, or oxidation, during the sweating process, the exact nature of which changes has never been studied. The relations of the different compounds concerned in the production of vanillin may be indicated as follows:

$$C_6H_5\,COOH \quad \text{Benzen Carboxylic Acid}$$

$$C_6H_4 \left\{ \begin{array}{ll} OH & (1) \\ COOH & (2) \end{array} \right. \quad \text{Oxybenzoic-Ortho or Oxy}^1\text{-Carboxy}^2\text{ Benzen}$$

$$C_6H_5 \left\{ \begin{array}{l} OH \\ OH \\ COOH \end{array} \right. \quad \text{Di-oxybenzoic Acid} \quad \begin{array}{l} \text{123-vicinal or adjacent} \\ \text{124-asymetrical} \\ \text{135-symetrical} \end{array}$$

$$\text{Protocatechuic Acid (a)} \left\{ \begin{array}{l} OH\ (4) \\ OH\ (3) \\ COOH\ (1) \end{array} \right. \quad \text{Carboxy 1-dioxy 3 4-Benzen}$$

$$C_6H_3 \left\{ \begin{array}{l} OH\ (4) \\ OCH_3\ (3) \\ COOH\ (1) \end{array} \right.$$

Mono-methyl Protocatechuic Acid
Carboxy 1-methoxy 3-oxy 4-benzen
Vanillic Acid

$$C_6H_3 \left\{ \begin{array}{l} OH\ (4) \\ OCH_3\ (3) \\ COH\ (1) \end{array} \right.$$

Methyl Protocatechuic Aldehyde
Methylal 1-methoxy 3-oxy 4-benzen
Vanillin

$$C_6H_3 \left\{ \begin{array}{l} OCH_3 \\ OCH_3 \\ COH \end{array} \right\} \quad C_6H_3 \left\{ \begin{array}{l} \left. \begin{array}{l} O \\ O \end{array} \right\} CH_2 \\ COH \end{array} \right.$$

Di-methyl Protocatechuic Aldehyde Methylene Ether of Photocatechuic Aldehyde (Heliotropin Piperonal)

PREPARATION.

I. (a) Oxidation of aliphatic side chains in coniferin (glucovanillin, olivin-acethomovanillic acid, acetoferulic acid), yielding an aldehyde group, while the hydroxyl and methoxy groups are already in their proper position

(b) From eugenol, iso-eugenol (eugenol-acetic acid, acetiso-eugenol, benzyl-iso-eugenol, methylene, iso-eugenol, iso-eugenol-phenyl-acetic acid and iso-eugenol-toluic acid) by oxidation.

Peroxide of hydrogen and sodium peroxide have been employed as oxidizing chains in late patents. In another patent electric oxidation has been referred to. Usually derivatives of and not eugenol itself are employed. This is done to protect the phenol group in these compounds from oxidation. Such compounds in which the hydrogen of the free hydroxyl group is replaced by a substituting group which is readily removed by oxidation, if preferred. For example, acetyl-eugenol.

$$C_6H_3 \left\{ \begin{array}{l} O\text{-}CH_3\ CO\ (4) \\ O\text{-}CH_3\ (3) \\ CH^2\ CH\ CH^2\ (1) \end{array} \right. \quad C_6H_3 \left\{ \begin{array}{l} O\text{-}CH_3\ CO\ (4) \\ O\text{-}CH_3\ \text{(Saponified)-}C_6H_3 \\ COH \end{array} \right. \left\{ \begin{array}{l} CH\ (4) \\ OCH_3\ (3) \\ COH\ (1) \end{array} \right.$$

Acetyl-eugenol — Acetyl Vanillin — Vanillin

In place of the acetyl derivatives others have been employed, as, for example, by the action of methylene chloride on eugenol-sodium, methylene-bi-eugenol results, which on oxidation yields methylene-bi-vanillin. This, when converted into a hexa-chloride derivative and treated with hydro-

bromic acid, yields vanillin. Another method consists in introducing a benzyl rest into the hydroxyl group of eugenol, then by heating with potassium hydrate the iso compound results, which on oxidation yields benzyl-vanillin. This ester, when heated with hydrochloric, yields vanillin under saponification. Another method closely related to the above is a modification, in which the benzyl rest is replaced by phenyl-chloro-acetic acid or chloro-toluic acid, these differing from benzyl-chloride in that they contain an additional CO_2 group.

II. Thus far the various processes depend upon the oxidation of the aliphatic side chain group in the mother substitute to yield an aldehyde group, while the OH and OCH_3 groups were already in their position in the original substance. In this group toluene is selected as the mother substance, or cinnamic-acid or benzaldehyde is employed. Starting with toluol, it is successively converted into m-chloro-toluol, nitro-chloro-toluol, nitro-chloro-toltyl-bromide, and finally into nitro-chloro-benzaldehyde. This latter compound is by action of a methylic-alcoholic solution of caustic alkali converted into p-nitro-m-methoxy-benzaldehyde, through reduction of the nitre group, diazotating and boiling, the resulting amido compound yields vanillin.

In the above processes the aldehyde group is introduced by oxidation or other means into benzene nucleus.

Since benzaldehyde is readily produced this has been selected as material production, introducing the necessary hydroxyl and methoxyl groups.

III. From protocatechuic aldehyde. This class of syntheses start from protocatechuic aldehyde, of which vanillin is a direct derivative through the introduction of a methyl group.

IV. From guaiacol.

(a) By introduction of an aldehyde group by action of chloroform and caustic potassa, guaiacol, a monomethyl ether of protocatechuic aldeyde yields vanillin direct, but the process is open to the objection that a side product is formed, in which the aldehyde group enters the ortho instead of the para position.

(b) By convertion into the guaiacol-carboxylic acid, by the introduction of the aldehyde group and separation of CO_2, guaiacol-carboxylic acid is treated with chloroform and alcoholic potassa, yielding vanillic acid, from which the vanillin may be obtained upon removing the CO_2 group by heating.

(c) A modification of this consists in converting guaiacol-sodium by action of carbonic acid at 180° C. into guaiacol-di-carboxilic acid, which, upon treatment with chloroform and alcoholic potassa, yields vanillic acid, in which the para carboxyl group is replaced by a methylal radical. The convertion of vanillic acid into vanillin then proceeds as given above.

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EDITORIAL.

A GENERAL INDEX TO THE PHARMACEUTICAL JOURNAL AND TRANSACTIONS.

For nearly two generations this publication constituted our highest and most important source of scientific information relating to pharmacy that was published in English. If it no longer occupies this position, it is not due to any process of deterioration in itself, but rather to the fact that such remarkable progress in pharmaceutical journalism has been made elsewhere, especially upon this side of the Atlantic. It may, therefore, be said that for this very improvement we are largely indebted to the influence of the Journal. The fact remains that its files constitute our most important record of pharmaceutical progress published in the English language. It is a record which is simply indispensable to every scholarly pharmacist, whether engaged in the active practice of his profession or in pharmaceutical teaching or journalism. None of these can fail to be rejoiced by the prospect of the preparation of a general index to these files. Should this index be executed upon a liberal scale, including references to the infinity of review notices which the pages of the Journal have contained, it will constitute one of the monumental publications of science.

The publication of the index is not yet assured, inasmuch as it will depend upon the secural of a sufficient number of subscriptions to justify the undertaking. Neither is the price definitely fixed, as this will depend upon the same conditions. The maximum price which may be charged is

a pound; the minimum, five shillings. Subscriptions may be sent to the Editor, at 17 Bloomsbury Square, London, or to the Editor of the JOURNAL OF PHARMACOLOGY, who will be glad to receive and forward them.

H. H. R.

THERE ARE OTHERS.

EXTRACT from *American Druggist*, Jan. 10, 1898:

"HE WILL HAVE DISAGREEMENT."

The services of an editor are required at the New York College of Pharmacy. The following notice is posted in a conspicuous place on the bulletin board of the college. It reads:

"The gentleman who tooke a chemistry book downstairs on a bureau Wednesday is known. He will be excuse if the book is replaced untill Monday.

"If not he will have disagrement."

EXTRACT from *American Druggist*, Jan. 25, 1898:

WORK OF THE NEW BOARD.

The new Board of Pharmacy in the city of New York began its work formally on Monday, *October 17th*, by holding an examination at the Brooklyn College of Pharmacy, at which two candidates appeared. Secretary Faber will be in his office at the New York College of Pharmacy from 9 to 12 and from 1 to 5 every week day except Saturday, when he will not be there in the afternoon, for registering applicants. On the first day his office was opened 12 applicants were registered. All pharmacists and assistants must appear for re-registration before May 1.

The work of the Board has been divided up as follows: Mr. Muir will examine in materia medica, Mr. Bigelow in pharmacy, Dr. Diekman in chemistry, and Dr. Brundage in *toxocology* and doses. The meetings will be held for examination on the third Monday of each month, being held at the Brooklyn College of Pharmacy in the even months and at the New York College of Pharmacy in the odd months. No meetings will be held, however, during the months of July and August. The examination fee is $5, which is not returnable in case of failure to pass. A percentage of 75 will be required to pass.

How does it happen that the Board began its work on October 17, when it was not elected until January 3, 1898?

No doubt the elections were the result of a "slate," and the new Board wanted to show its energy by getting to work ahead of time.

Of what interest is it for pharmacists to know when Secretary Faber will be at his office *not* to register applicants? Why not tell them when he will be there to register them?

The subjects assigned to Dr. Brundage, in which he will conduct the examinations, have no doubt been poisoned, and *toxicology* has been killed.

Would it not have been better to have said: "The meetings for examina-

Which are we to consider the even months; which the odd months? Are they classified according to sequence, or are we to understand that those having 28 or 30 days are to be the even months and those having 31 days are to be the odd months? If we take the latter construction, we might get twisted some year in February; that could be overcome, however, by electing another Board of Pharmacy before we again have 29 days in February.

Why not say the "examination fee is $5 and is not returned, etc."

Bring on the Editors. G.

THE summer course in botany given each spring by the College of Pharmacy and the Torrey Botanical Club will organize some time in March. Three courses will be given: One on general botany, with field excursions. 2. A course in vegetable histology. 3. A course in cryptogamic botany. The first to be held on Friday afternoons and the excursions Saturdays; the others to be held in the evenings.

Circulars will be issued later, giving more exact information. Tickets may be obtained at the college building from the Assistant Secretary, Mr. O. J. Griffin.

ABSTRACTS.

On Jaborandi Leaves. H. GEIGER. (*Berichte der Deutschen Pharmaceutischen Gesellschaft,* Vol. 7, 1897, pp. 356.)

One of the most important of recent pharmacognostical contributions to the subject of jaborandi leaves is that of the author. A careful and detailed description of Pilocarpus jaborandi, P. pennatifolius, P. trachylophus, P. microphyllus, P. spicatus and Schwartzia decipiens, their anatomical and histological characteristics, with careful drawings and measurements, is given.

Digitalis.—In the *Therapeutic Gazette* for August, 1897, page 505, Prof. Hare discusses the choice of the various preparations of digitalis. He refers to the general view that the several preparations of this drug respectively produce peculiar effects, due to the relative proportions of the several active principles of the drug as contained therein. The active constituents being digitalin, digitoxin, digitalein and digitonin, the three former acting in variable degrees upon the heart muscles, the last depressing the vagus nerves and inhibitory ganglia in the heart, and, these constituents being soluble in different ways, there would naturally be a wide variation in the medicinal actions of the different preparations. After considering the specific actions of the different constituents and their solubilities, he contions will be held on the third Monday, etc."

cludes that the tincture and fluid extract are greatly to be preferred in the presence of a failing heart and circulation, the infusion acting better as a diuretic in those cases where a direct renal stimulant is desired. It is, however, much more apt to disturb the stomach, owing to the irritating digitonin which it contains. He advises against the use, ordinarily, of digitalin owing to its irregular nature, as occurring in commerce. R.

Comparative Structure of the Leaves of Datura Stramonium, Atropa Belladonna and Hyoscyamus Niger.—J. O. Schlotterbeck and A. Van Zwaluwenburg. *(Pharmaceutical Archives,* Vol., I., 1898, pp. 1-6.)

The authors give a careful study of the anatomical details of these three leaves, with the object in view of determining them in the powdered condition. The following resumé of characters is given:

D. STRAMONIUM:

Leaf:—Smooth, sinuate, unequal at the base, with round perforations and prominent mid-rib underneath.

Powder:—Elongated palisade cells; stellate crystals predominating, occasionally cubes; thick-walled, warty hair.

A. BELLADONNA.

Leaf:—Broadly ovate, narrowed into a petrole; entire margin, smooth.

Powder:—Crystal cells, large, round and full of crystal sand, or acicular crystals.

HYOSCYAMUS NIGER.

Leaf:—Hirsute, deeply sinuous, clasping at the base.

Powder:—Crystals prismatic, or in twin forms; seldom, if ever, stellate.

Poisoning by Sorghum.—In *The Agricultural Ledger,* for 1896, Number 24, Veterinary Captain Pease discusses the well-established fact that Andropogon Sorghum, which is ordinarily a perfectly harmless fodder plant, may become highly poisonous when the plant grows in a stunted or dried-up form, owing to the failure of the regular rains. Reference is made to the great number of fatal poisoning accidents which occur to Indian cattle due to this cause, and to the public impression that they result from the occurrence in the plant at such a time of a boring insect, similar to that which infests the sugar cane under similar conditions. Reference is also made to the fact that the poisonous properties develop simultaneously over a large tract of country, appearing and disappearing within certain fixed limits of time. But the opinion of Veterinary-Surgeon Anderson is quoted to the effect that the poisoning is merely the result of ordinary tympanitis, due to the indigestibility of the fodder. Captain Pease sets all of these theories aside, and records his discovery of large quantities of nitrate of

potash within the stalks of the poisonous form of the fodder, especially about the nodes, and appears to have clearly established the fact that the poisonous effects are due to this agent.

BOOK REVIEWS.

The Pharmaceutical Archives.—We are in receipt of the first number of the *Pharmaceutical Archives*, and it is certainly a very attractive contribution to the pharmaceutical sciences. The number contains an excellent illustrated article by J. O. Schlotterbeck and A. Van Zwaluwenburg on the comparative structure of the leaves of Datura Stramonium, Atropa Belladonna and Hyoscyamus Niger, and another, by Rollin H. Denniston, on the anatomy of the stems of Fraxinus; a Chemical Biography of Morphine, from 1875 to 1896, by H. E. Brown, and list of the common names, with other facts of interest, of some of the native drugs of Brazil, by Dr. Theodor Peckolt.

We hope to see the "Archives" wax and grow heavy, and trust for it a generous recognition. J.

A Text Book on General Botany. By Carlton C. Curtis, A. M., Ph. D., Tutor in Botany, Columbia University.

A large number of text books of botany have appeared within the past few years. The present one is, we believe, a very excellent addition to the number. In certain particulars it is a work of especial value, as it takes up plant anatomy, plant physiology, systematic morphology and some paleo botany, all in one volume. This general character necessarily involves a certain brevity of treatment, but for the beginner the present amount of information is, we believe, ample and well digested.

The work is to be specially commended to the outside worker as well as the student in the laboratory, as the series of practical directions following each subject handled places in the hands of the non-instructed the means of self-instruction. In these series of practical directions a closer adherence to the common names of plants would render the work of more value, especially to the outside worker; for the worker in a laboratory naturally it makes but little difference.

The book is beautifully gotten up, and is especially well illustrated in the systematic portions; there is a dearth of illustrations in the anatomical portions, however, in which subject good illustrations are of so much pedagogic value.

The work in general is to be recommended, and we hope for it a generous recognition of its estimable features. J.

Manual of Legal Medicine.—For the Use of Practitioners and Students of Medicine and Law. By Justin Herold, A. M., M. D. *J. B. Lippincott Company*, Philadelphia, 1898.

That the great value of medico-legal studies is being appreciated at the present time more than heretofore is made manifest by the recent appearance of a number of works bearing upon the borderland where medical science and legal practice overlap.

The present volume will be highly appreciated by the doctor, the lawyer and the pharmacist, for the last is rapidly becoming our scientific chemical expert.

The work is conveniently divided into two main parts, Part I. discussing the general subject of toxicology, and Part II. gives an exhaustive treatment of forensic medicine in its many aspects.

It would manifestly be impossible to try to give any abstract of this excellent work of some seven hundred pages, but some few points of special interest and value suggest themselvs in the reading:

The chapters upon toxicology are especially full, and what renders the work of value especially to the physician is the full consideration of treatment of poisons. In a work of this kind it would be manifestly impossible to consider every class of toxic agent, and some of the poisons are only touched upon. The recent importance given to the study of mycology causes one to wish that a little more might be said about mushroom poisoning.

The author has shown very conclusively and truly, we think, in his chapter upon the ptomaines and other putrefactive bodies, what great care must be taken in medico-legal investigations upon poisons of this class.

In Part II. Dr. Herold takes up that portion of the science "which treats of the application of medical knowledge to the purposes of the law." The signs of death are fully treated in chapter 19, and a careful account of what a medico-legal autopsy should be is treated in the next chapter. Chapters on identity and identification follow. Two most interesting chapters are those on the technical microscopical methods of identification of animal hairs and of animal bloods. This latter is exhaustively treated, and some excellent tables of blood measurements are given.

Wounds, Burns and Scalds, Forms of Violent Death, Strangulation by Hanging or by Drowning, Medico-legal aspects of Electricity, Death by Heat and Cold, Pregnancy, Criminal Abortion, Infanticide, Rape, Impotence and Sterility, are all heads of chapters filled with useful and accurate information.

The author wisely considers the medical examination of the living in its medico-legal aspects. A chapter of special interest to pharmacists is that upon Pharmaceutical Jurisprudence, contributed by Judge Geo. F. Roesch.

In conclusion the author collects in an appendix a large number of specially interesting and illustrative cases.

The work is one of interest and of great merit, and is to be heartily recommended; moreover, the publishers have given it an attractive and durable form. J.

Alumni, College and Class Notes.

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COLLEGE NOTES.

At the regular meeting of the College, held on Tuesday evening, January 18th, one hundred and fifty-six persons were in attendance. The subject of Vanilla was extensively discussed in the series of papers presented below. The discussion was richly illustrated throughout. Prof. Rusby presented herbarium specimens of the vanilla plant, colored lantern-slides representing the floral structure, the processes of artificial pollination and of curing the vanilla bean, together with fresh fruits in preservative columns. Prof. Jelliffe exhibited a series of microscopical preparations and cultures of the moulds found upon damaged fruit. Prof. Coblentz exhibited samples of artificial vanillin, including one of the large amber-colored crystals which have recently appeared. Mr. Henning exhibited some fifteen commercial samples of vanilla beans, representing every variety known to the New York market. Mr. Kalish submitted samples of vanilla extracts, genuine and fictitious, prepared according to the different formulae to which reference was made in his paper.

ALUMNI NOTES—SOCIAL EVENTS.

It is a sufficiently difficult matter to write up an account of one of our receptions, but this month it becomes my duty to write about three, which were held respectively on these dates, Wednesday evening, December 22d, Wednesday evening, December 29th, 1897, and Wednesday evening, January 20th, 1898. Of course, they were all well attended, highly successful, and extremely enjoyable; the latter one being by long odds the better one of the three, and worthy of special mention. At no previous reception did we have such a large and merry crowd, nor so many and interesting features. First there was the choosing of ribbons among the ladies and gentlemen from hats passed around by the stately "Billy" Hoburg and the genial "Harry" Ferguson, and then the pairing off of the couples, each gentleman having for his partner the lady whose ribbon matched his own; then followed the march and lanciers, then the quartette sweetly warbled, and more dancing until the smallest of the wee small hours.

Unfortunately it was impossible for the writer to obtain a complete list of those present, and therefore it is necessarily omitted this month.

SCHEDULE FOR FEBRUARY—THE THIRD ANNUAL BALL.

Wednesday, February 9th, at 10.30 P.M.

It is probably unnecessary for me to remind the members of the Alumni

and their friends about the Ball. The best I can do is to tell you all to be sure to come, and the fact that you will have a good time is assured as our record for affairs of this kind in the past is a positive guarantee of the same in the future; and, finally, permit me to sound my old war cry, "Come one, come all, and bring the ladies!"

Wednesday, February 16th, at 8 P.M., lecture by Mr. Chas. E. Parker, on Surgical Dressings; at the conclusion of the lecture the Association will hold its regular monthly reception, another chance for an interesting and enjoyable evening.—"*Don't miss it!*" R. G.

'93 NOTES.

One of the most pleasant surprises of the holiday season was the unexpected entrance of Dr. Horni from Troy, N. Y. He is gaining flesh, knowledge and beauty up there, and in the spring starts for Oakland, Cal., where he has secured a hospital appointment. The '93 boys are certainly "wiz's".

Ambos is studying medicine at the University.

Sasse is busily engaged in biking, and while not having made any records as yet, he is rapidly creeping up on the leaders.

Boldman has left Haas and is now at the P. & S. We don't have to wish him success, as that is a foregone conclusion. E. F. L.

'94 NOTES.

With comparatively no announcement, the Reception held on the 19th was the largest one held under the auspices of the present committee, which goes to prove that the Ball this year is going to be a record breaker. Let '94 do justice to the reputation it has made by being loyal on February 9th.

At the above-mentioned reception we had with us Drs. Geisler, Pond, Davies, Kirk, and Capt. Erb, the latter has developed into quite an adept of the art, his specialty being the Sarsouvianne. Watch him at the ball.

Our picture is still the only finished one in the Alumni Room. "Funny about '93;" ask Stroburg.

Stoerzer is looking for an appointment as a milk inspector under the new municipal regime.

'97 NOTES.

Shears is on night duty at the Long Acre Pharmacy, at the corner of Forty-third street and Seventh avenue, Manhattan.

Schlotterbeck is with the Jungman Pharmacy, Third avenue.

Slattery, he from "Konnect i cut", is working. Somewhere in Brooklyn.

Little "Willie" Van Gilder patiently sits in the "Peanut" Gallery at college, awaiting results.

Milne: Say, Kaiser, what is Tertiary Alcohol? Kaiser: Three beers.

Extract from Milne's Handbook of Pharmacy: Make double quantity, so that you are certain to get one full quantity.

Young wishes to know whether there are any towels, pencils, paper, etc., which are "not working". One of his old experiences to effect a loan and never to return these articles during college hours.

To the class of 1898:

The class of '97 wishes to extend its best wishes and future success in this year to each and every member.

The Ball of '97 Alumni was voted a success, and to make the coming Alumni Ball a "howling success," February 9th, 1898, each of us should attend, to make it a sort of reunion of the class.

Devine is now with the Messrs. Milhau Sons, in Broadway, Manhattan. He extends to you all the heartiest best wishes that thoughts can formulate for this year, as well as those to follow.

Weingarten is with the Messrs. Max Stein Drug and Cosmetic Co., corner Sixth avenue and Twenty-sixth street, Manhattan. One of the Brooklyn crowd, you remember.

Ingham is said to be in business somewhere in Rhode Island. The place is said to be like the boy himself—*fin de siecle.*

Tommy Evans, the short of the "long and the short of it" of the Pharmaceutical Willies, is with Mr. R. S. Davies, of Scranton, Pa.

Koch recently honored me with a visit, and I scarcely knew him. He has grown to be quite corpulent, and has quite an aldermanic.

Nickerson has resigned his position with the Messrs. Riker Drug Co., Sixth avenue and Twenty-third street, Manhattan, and is now taking a vacation.

Leonard, from the "Stately Isle," is a Benedict. He was recently married, and is now located with Mr. Oscar Kress, at the corner of Fifty-second street and Broadway, Manhattan.

E. A. M.

'98 NOTES.

It was a beautiful day—that day we went to Squibb's. The weather, the authorities, everything seemed to combine to make our trip across the river an enjoyable one. The Borough of Brooklyn had a representative at the Bridge entrance to receive us with open arms, and after our scientific investigations were completed, as a grand finale, they burned a block of buildings for our amusement. Oh, it was a hot time! Our captain was Prof. Dickman, assisted by his lieutenants, Drs. Hoburg and Gies. On arriving at Squibb's our captain did some wire-pulling, and then, with the caution (which to us was superfluous) that smoking or any hilarity were strictly prohibited, we were invited in. Well, we saw it all—all there was to be seen—and came out bubbling over with knowledge and admiration for the charming lassies employed by Mr. Squibb. Then we went to the acetic acid factory, where we became so impregnated with acetic acid fumes that none of us will ever fail to recognize that particular acid (or its antidote). Finally, after seeing all there was to be seen in the Borough over the river, we decided that "there is no place like home," and so homeward we wended our weary ways, feeling confident that Prof. Coblentz would have to arise with the larks in order to "stick" us on chloroform or acetic acid.

Have you seen the boys throwing dice for seat numbers?

The Alumni dance of January 19th was by far the most successful of any this winter. Our class was well represented, not only by the boys, but also by some of our lady members.

Some of the boys who are interested in the manly art of self-defense met at our friend Bottstein's house one evening last week. The evening's entertainment was started by an eight-round draw between Siegel and Elliot. This was fol-

lowed by a three-round mill between Tueffer and Maguire. The referee gave the decision to our friend from the "city of brotherly love." The next "scrap" was between Sullivan and Patton, with honors slightly in favor of the boy from Dixie.

As a finale the host and Mr. Mylen gave an exhibition in which our representative was slightly worsted. The evening's entertainment was voted by all so decided a success that we may look for a repetition in the near future.

A REGULAR class meeting was held Wednesday, January 12th. The principal business was the election of class valedictorian, and, as there were six candidates in the field, there was considerable excitement. It was decided that the only way in which the relative abilities of the various candidates could be judged was by sampling the pudding, and so each was requested to make an impromptu speech of not less than five minutes' duration. The genial Patton led off with an appeal for shorter hours, which brought down the house. Nothing daunted by Patton's selfishness in selecting the only available platform on which to stand, Richards took the stand, and with a smile in the ladies' direction (which netted nine solid votes) told what an honor he should deem it to be elected. Next came McCoy, who emphatically denied that he was a Philadelphian. He was a New Yorker first, last and always, and only went to Philadelphia to get cured of insomnia. Knipe, our Brooklyn friend, now took the stand and said that he too was proud to say that he was a New Yorker, and that if elected to the office he would endeavor to indite a speech that would be a credit to Chauncy M. Depew. Siegel denied the rumor that he had bought out Cooper & Co., but said that if elected he should do his utmost to do justice to the position. Staton refused to speak because having written his speech on his cuffs he had, in a moment of thoughtlessness, sent them to the wash. So evenly did the candidates seem to be in executive ability that it was a difficult matter to decide between them. On the first ballot no candidate received the majority necessary to elect, and so the elction was postponed for a week.

HAVE you noticed Holcomb wandering around this cold weather without an overcoat? He isn't in financial straits; he's simply training for his trip to Klondyke.

ARE you going to the class dinner? Don't miss it, or you will have missed the best time of the whole year. If you haven't the money for a ticket, begin to save now. If you can't save, borrow. If your credit isn't good, apply to the dinner committee. They have made arrangements with a pawn-broker where you can "soak" anything from a gold watch to a cast-off pair of shoes. After arranging preliminaries, buy a ticket and starve yourself for a week and then come to the dinner. If you don't enjoy yourself, the committe will refund your money.

WEDNESDAY, January 19th, a second attempt was made to elect a valedictorian. The nominations were reopened, and some new recruits put on the list. The result was once more indecisive, no candidate receiving a majority vote, and the election was postponed another week.

A NUMBER of our Jerseyites went to Trenton, last Thursday (January 20th). We wonder why they went.

IF the fellows who are constantly saying "come seven" succeed in getting one on "exams," we shall be surprised.

DID you hear those red ties?

OUR methyl quartette is becoming more famous every day. No college function is a success without them. C. F. E.

'99 NOTES.

SECTION II. can boast of some musical talent. Ward has composed some tuneful melodies for the piano, and is himself a good pianist; Brown handles the ivories with skill, and Jackson is instructor and director of a mandolin and guitar club in the Borough of Brooklyn. There may be more, but it has not, so far, come to the surface.

BROTHER students of Frank Schreiber, Section III., extend their heartiest sympathy in his recent bereavement in the loss of his sister Marie.

VAL. BERNDT is now located in Mr. Tappenden's store, Sixty-fourth street and Columbus avenue.

BERNDT and Schreiber are now after all indoor, outdoor and century records on a Warwick tandem. The gear of their wheel is 94 (where?).

VICE-PRESIDENT Geo. Jackson was serving on the jury week ending January 15th, in Brooklyn, Borough of the Bronx. (How many did you send up, Jacky?)

SECTION II. has quite a number of devotees of the wheel. Messrs. Keefer, Munger, Oates, Berndt, Taddiken, O. N. Frankfurter, Ward, Schreiber, Moore, are among the more enthusiastic wheelman, O. N. Frankfurter being the color bearer of the New York College of Pharmacy Bicycle Club (N. Y. C. P. C. C.).

OUR section also holds the record in that no cover glasses were broken on the first day of using the compound microscope and mounted specimens.

FRED S. FRANKFURTER accepted a position with Messrs. Casswell, Massey & Co., corner Seventy-seventh street and Columbus avenue. He is succeeding Mr. Hoffstadter, also a student of our class (Sec. III.), who is now devoting himself entirely to his studies at the college. CLARA F. EHLIN.

THIS quizzical class composed of juniors meets every day at noon for quiz, and consists of Walter F. Keating, Grandin V. Johnston, D. Wettling, F. McGuigan, S. E. Moore, J. Kessler, J. Hart Michael and Jackson, and Sullivan. Keating generally amuses the gentlemen for five minutes with a very good jig, or a good imitation of a clog dance. Mr. Whettling is very good at telling stories. The last one, about "Chauncy and his friend," scored quite a hit. We stopped at Petty's, in Newark, the other night, and were informed that Chauncy had been spending all his loose change for soda of late. We know that he does not drink soda. Perhaps his fair companions do.

So much for the quizzical students.

THE Section III. men have been so busy attending the frequent (?) '99 class meetings and sociables that they have not had time to do much else, so there is little news for this number.

PERHAPS the same reason accounts for the brilliant recitations in "quiz," of which the following are examples:

One gentleman, with his thoughts deep in mathematics, informed the section that the most abundant kind of electricity was "fractional."

Another enlightened the class by the announcement that "Faradays'" dinner bag, when turned inside out, spilled the electric fluid to the earth on account of its great gravity.

P.S.—He said this with great gravity.

Another bright fellow informed us that when the pollen reached the oosphere it caused a "fortification."

A literary (?) man tells us Goethe discovered electricity and invented the electrical machine.

Still another, the "Best off" man in the section, tells us that an increased pressure of the blood causes an expansion of the arteries and instantly causes the poor victim to expire.

We fear that Cimioti has joined the ranks of the leisure class outside the college.

C. F. E.

N. Y. C. P. C. C.

Sorry I can't tell you something about the "Stag." The next issue of the Journal will have an elaborate account of it.

The suggestion was made in December that the club participate in the parade on New Year's eve, but, after being given due consideration, was not followed.

THE TEN CYCLE COMMANDMENTS.

I.

Thou shalt have no other toys before me.

II.

Thou shalt not ride through the streets with me dressed in any soiled and ragged togs that may be fished out of a closet, but shall keep thyself neatly clothed and clean, and look genteel and civilized rather than like a tramp.

III.

Thou shalt not take up all of the road, but, in riding, keep to the right and make all others do likewise.

IV.

Remember the Sabbath day to keep it holy. Six days shalt thou ride and do all thy roistering, but on the seventh day, which is the Sabbath, go not forth on loud talking, gum-chewing or otherwise boisterously objectionable expeditions. Ride, if thou ridest at all on the Sabbath day, quietly, decently and with decorous bearing.

V.

Honor the city ordinances and the policemen, and hide not thy light under a bushel.

VI.

Thou shalt not scorch.

VII.

Thou shalt not "hump" over the handle bars and look like a monkey.

VIII.

Thou shalt not steal (addressed particularly to "bicycle editors").

IX.

Thou shalt not bear false witness against thy neighbors performances or his records.

X.

Thou shalt not covet thy neighbor's bicycle, nor his wife's bicycle, nor his costume, nor her bloomers, nor his cyclometer, nor his saddle, nor anything that is thy neighbors.—Chicago *Times Herald*.

Scorcher.

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The Journal of Pharmacology

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CONTENTS.

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Published by the Alumni Association of the College of Pharmacy of the City of New York.

VOL. V. NEW YORK, MARCH, 1898. NO. 3.

THE COMMERCE OF VANILLA.

BY ADOLPH HENNING, PH.G.

The United States is the largest consumer of vanilla. We use more than all the rest of the world combined and chiefly the best kinds produced.

The vanilla most used, and best known in this market, is the pod of vanilla planifolio, grown in Mexico, chiefly near Papantla.

It is the best flavored vanilla of all that come to this market. The pods are from five to eight and a half inches, sometimes nine inches, in length, round and tapering at both ends, with a hook at one end; in color they vary from a reddish brown to almost black, and when of prime quality, are of a dark chocolate color, with a thin, smooth, oily epidermis and quite pliable. As found in market in recent years, they rarely have a covering of crystals.

The Bourbon or Reúnion vanilla is next in point of quality and flavor. It resembles the Mexican very much in general appearance, excepting that it is generally covered with crystals of vanillin.

The odor of this variety is not so fine as that of the Mexican, being "pruney," though an extract made from the best Bourbon fruit compares very well with one made from the best Mexican.

In color and quality the Bourbons range from the very worst to the very finest, and in size from very small to very large, 4 to $8\frac{1}{2}$ inches in length. The vanillin crystals also vary much, there being long, snow-white crystals, white matted masses resembling cotton, and light and dark yellow crystals. This variation in color of crystals is due solely to their age.

Vanilla imported from the Island of Mauritius resembles the Bourbon very much, its color ranging from a reddish to a dark-brown. The crystals of vanillin appearing upon them are usually very handsome. The Mauritius, as also the Bourbon, vanilla is chiefly imported from France.

The Seychelles Islands furnish us with vanilla much inferior to any of these previously mentioned. Its odor is often "smoky" or "inky." The pods range from 4 to 8½ inches in length and are of a light-brown to dark-brown color. They are generally nicely crystalized. England is the chief market for this variety.

From Guadaloupe we receive a vanilla known as the "South-American," which resembles the Mexican very much in appearance, though much inferior in odor. The pods average from 6 to 8½ inches in length. The epidermis is quite hard, with longitudinal furrows. They are never offered in this market as South-Americans.

In addition to the so-called South-American vanilla, we receive from Guadaloupe a variety known as "vanillon." Its odor is that of heliotrope, even surpassing that of the Tahiti vanilla. Its pods are very short, thick and flat, from 4 to 5 inches in length, have a twisted appearance and are of a dark-brown color. Vanillon is rarely used to make extract, its chief consumption being in the manufacture of tobacco flavors, sachets and perfumery.

Vanilla imported from Tahiti is almost devoid of the true vanilla flavor, resembling the odor of heliotrope. The pods vary from 4 to 8 inches in length and are flat, very pliable and soft, and of a dark-brown color. They never crystalize.

Pompona is derived from Mexico. Though it is usually known as "wild vanilla," it is generally accepted that it is not the fruit of wild V. planifolia plants, but of the V. Pompona. The natives, however, state that the V. Pompona is the ancestor of the V. planifolia, and that the latter is the result of cultivation. Its odor is similar to that of the Tahiti, and the pods are very short and thick and covered with a rough skin. Only very small quantities are brought here.

A variety rarely met with in this market is the Java vanilla. Its odor is much stronger than that of the Mexican pod and equally fine. Its color is reddish-brown; the pods are from 4 to 6 inches in length. When sound and of prime quality, it is nicely crystalized. It is chiefly consumed in Holland.

Mexican vanilla frequently comes to this market cut up into pieces from ½ to 1¼ inches in length and known as "cuts." These are of inferior quality, being made from wind-falls, pods picked before maturity, split pods and such as are too small or unsightly to pack in bundles.

The Mexican vanilla, owing to its exquisite odor, commands the highest prices. At present, owing to successive short crops, since a heavy snow storm and killing frost visited the vanilla district in 1893, the ruling prices are from 50 per cent. to 100 per cent. higher than formerly. Short and inferior pods bring $9, while prime ones sell as high as $16 per pound.

Bourbon and Mauritius vanilla sell at from \$4.50 to \$8; Seychelles brings from \$2.50 to \$5; Guadaloupes from \$3 to \$5; Tahiti from \$2.50 to \$3.50; Vanillons, \$2.50 to \$5, and Mexican cuts, \$9. In 1894 Mexicans sold at \$7 to \$12, Bourbons at \$4 to \$7, Tahitis at \$1.25 to \$1.50; in 1895 Mexicans sold at from \$7 to \$10, Bourbons at \$4 to \$8, Tahitis at \$1.40 to \$1.70; in 1896 Mexicans sold at \$8 to \$11.50, Bourbons at \$4 to \$7.50, Tahitis at \$2 to \$3.40.

The consumption of vanilla is steadily increasing, as will be seen by the following figures, showing the importations into this country:—

In 1884	74,634	pounds.	In 1891	171,555	pounds.
" 1885	97,000	"	" 1892	242,465	"
" 1886	103,770	"	" 1893	249,247	"
" 1887	137,700	"	" 1894	171,555	"
" 1888	143,470	"	" 1895	132,196	"
" 1889	168,536	"	" 1896	145,000	"
" 1890	144,870	"	" 1897	156,090	"

The marked falling off since 1894 is due to the short crop of Mexicans, on account of the frost previously mentioned.

It may be of interest to you to know what proportions of these vast quantities were Mexicans, and what of the other leading varities; so I will give a report for the last five years:—

In 1893	274,544	pounds.	170,620	pounds.	27,588	pounds.
" 1894	411,752	"	101,111	"	21,920	"
" 1895	25,998	"	90,752	"	15,446	"
" 1896	40,000	"	71,000	"	38,219	"
" 1897	58,521	"	65,378	"	32,191	"

The value of last year's importations was approximately: Bourbons, \$368,000; Mexicans, \$800,000; Tahitis, \$90,000.

The general quality of vanilla has changed in recent years to a noticeable degree. Mexicans are not quite so handsome as in former years, probably owing to the fact that, while then every curer and packer took pride in offering goods that surpassed those of his competitors; they now look after the pecuniary side only. Whereas crystalized Mexican pods were formerly of frequent occurrence, they now rarely possess any crystals.

Bourbon vanilla has, on the other hand, improved wonderfully, every new crop being an improvement on the preceding one. Only twenty years ago it was difficult to sell Bourbon vanilla in this market, while we now import almost as much of this variety as of the Mexican. Prime Bourbon pods are to-day handsomer in appearance than prime Mexican. The quality of Tahiti vanilla is much inferior to what it was a few years ago, owing to lack of care on the part of the curers.

The great rival of vanilla pods is vanillin. The consumption of the artificial vanilla flavor, vanillin, has increased wonderfully. It is scarcely ten years since it ceased to be a mere curiosity and began to be an article of commerce; yet it is estimated that during the past twelve months over 100,000 ounces have been used in this country. This is owing partly to its improved quality, but chiefly to its cheapness. While it sold at $5 an ounce only two years ago, the price dropped to ninety cents prior to the going into effect of the Dingley tariff, and it now sells at $1.70. These low prices have induced consumers to use vanilla flavoring where they formerly used other flavors or no flavors at all. Its chief consumption is with confectioners and cracker bakers, on account of its being colorless and on account of the ease and rapidity with which the extracts can be made. Recently a vanillin in large crystals has been made. It is prepared by slow crystalization instead of by precipitation. It is said to be much stronger and of better flavor than the white crystals usually met with. It is of a light amber color and sells at about $3 an ounce.

It may not be out of place to state here that vanilla extract made from vanillin should not be used immediately after being made. It should be allowed to stand about two weeks before being used, and should invariably be prepared with simple syrup after dissolving in spirit, because sugar has the property of bringing out the flavor.

It is a curious fact that the enormous increase in the consumption of vanillin has scarcely affected the consumption of the pods. This is probably due to the fact that vanilla flavoring is used in many instances where it was not used formerly.

VANILLA EXTRACTS. VANILLIN AT THE SODA FOUNTAIN.

By Oscar Kalish, Ph.G.

Taking it for granted that the practical advice of those who have preceded me has procured the selection of an excellent lot of vanilla beans, it is still no easy matter to prepare a good extract or tincture. I know of no preparation which pharmacists manufacture in which it is so necessary to carefully watch the details. In talking over this subject with those who engage principally in its manufacture, I have met with an almost endless variety of formulae, all of which, undoubtedly, will lead to an excellent product if every step in the process is minutely and intelligently carried out.

It is interesting to note the methods which prevail in different countries. The Germans advocate a 20 per cent. tincture made by digestion, the French a 10 per cent. tincture made by maceration, and our own pharmacopeae

advises us to make use of both, maceration and percolation. Of the three methods, that of our own country is the best. Now, is there a better formula than that of the U. S. P.? What is necessary to produce a satisfactory tincture of vanilla? What process is to be adopted to extract all the flavoring principles of the vanilla bean?

Before stating the best methods which my own experience has taught me, I call to your notice a few samples of extract of vanilla made from different varieties of the bean, from different formulae, and from the artificial product vanillin.

This sample, marked No. 1, is a tincture made from the Mexican bean according to a formula which I will mention later. Sample No. 2 is prepared by the same formula from a Bourbon bean. I call your attention to the distinctive differences in these two products, redounding very much to the credit of the Mexican bean. The Bourbon tincture has a characteristic tonka odor which is not noticed in the Mexican tinctures, and lacks a certain bouquet which is present in the latter. Up to a short time ago, I had never used the Bourbon beans, but was induced to prepare an extract from them last November. The beans in appearance were certainly as fine as any I have ever seen, and gave me confidence that they would produce as good a tincture as I had previously been able to make from the Mexican bean, but in this I was disappointed, and I can say without hesitation that, value for value, the Mexican bean surpasses all other varieties. Tastes widely differ and oftimes the public are better satisfied with a product made from the cheaper beans, or one containing an admixture of tonka or coumarin. In fact, looking over the various formulae given, I was astonished to find one under this heading, "Tincture of vanilla, without vanilla." Hamlet without the prince, in very truth! The formula consisted of varying proportions of tonka, prunes, raisins, currents, and orris root, made up with a menstruum of alcohol and water, to which, after maceration, is added balsam Peru and New Orleans molasses. I have here a tincture made from this formula. It seems to be as good as many that I have seen bearing the label "extract of vanilla," and perhaps contains as much vanilla.

"The National Formulary" publishes a formula for what is evidently a cheap substitute for tincture of vanilla, viz., Tinct. Vanillin Comp., containing vanillin and coumarin, a sample of which we have here. This in nowise compares with tincture made from the bean, and will, I think, prove disappointing to those who try it. Now, to my mind, it is not necessary to resort to these various substitutes when a very satisfactory commercial preparation can be made from a well-selected Mexican bean, even at the prevailing high market prices, at a cost not to exceed $1 per pint. It is exceptional when the pharmacist cannot get fifteen cents an ounce for his vanilla extract. If it is to sell at a lower price, or if one is not content with

this margin of profit, he can follow out the general plan given in this formula, using a mixture of Mexican cuts, or Bourbons, with the Mexican bean. The best formula which has come to my notice was that kindly supplied by my friend, Dr. Miller. This extract is made from the Mexican bean in proportion of 8 oz. av. of vanilla to the gallon of finished product, and we will start out on the supposition that we are to make 7 gals. of vanilla extract. Our formula will then be:—

Mexican vanilla beans............3½ lbs. av.
Granulated sugar...................7 lbs. (twice the weight of the bean)
Cologne spirit, 190 deg. proof......4 gals.
Water............................3 gals.

After having carefully selected a lot of prime vanilla beans, the first step is to divide it into small pieces of from ¾ to 1 inch long, by means of an herb-cutter. And right here, let me say that vanilla beans should not come into contact with iron, as such contact destroys the flavor very quickly and may be the cause of a poor tincture. Place the cut beans in a porcelain jar and pour upon them 7 pints of boiling water. Cover the jar and let it stand for 24 hours. The object of this maceration or infusion is to bring the bean as nearly as possible to its natural green state. The bean as we find it in the market is, to use a homely expression, much wrinkled. The maceration swells the fibre and that portion of the surface which was formerly hidden is now exposed to the action of the menstruum which later is poured upon it. This maceration also prepares the vanilla for the next step, facilitating its passage through the chopper, and causes it to go through without becoming heated and without sticking to the blades of the machine as it would if not previously treated as stated. After maceration for 24 hours, pour off the supernatant liquid and transfer the beans to a machine which will cut or grind them up as fine as possible; the finer the better. A sausage cutter answers the purpose best; one in the form of a chaser, consisting of four steel disks revolving about a block of wood,—no contact with iron. Place the now finely ground vanilla in a porcelain jar, add to it 7 lbs. of granulated sugar, then the liquid with which it had previously been macerating and 8 pints additional of water. Stir frequently during 24 hours, and then add 1 gal. cologne spirits or alcohol. No longer than 24 hours should elapse before the addition of spirits is made, otherwise there will be danger of fermentation taking place. Macerate for 7 days and add another gallon of spirits, macerate another week and add 4 pints of spirits. It is this last portion of alcohol which contributes to the appearance of the finished product. Up to this time the liquid has a turbid appearance, but upon the addition of these last four pints, it becomes clear, the albumen present is coagulated and the finished product requires no filtration. If a menstruum less alcoholic is used, the tincture of vanilla

will not have this bright appearance and will require filtration, which is not to be advised in the making of vanilla extract. We then allow this mixture to macerate 30 days more and, at the expiration of that time, transfer the whole to a Squibb's percolator and cover with a muslin diaphragm. After the liquid with which it has been standing has been run through, add a menstruum made of 9 pints of water and 12 pints of spirits. The percolate will yield an excellent tincture or extract of vanilla, perfectly bright and clear and ready for use. It is advisable to keep this in wood for six months, but, of course, it can be used at any time. There is no method to be followed which will yield a satisfactory product in a few days, and, therefore, the pharmacist must anticipate his wants at least 60 days in advance.

Never try to make use of a bean which has been in a bundle a part of which has become mouldy. If *one* bean in the bundle is mouldy, the whole becomes contaminated, although it may not appear so, and an extract made from a bean taken from the centre of a bundle which is mouldy on the outside, but in itself apparently untainted, will have a mouldy taste, and all the perfumes from Arabia will not sweeten it. I had hoped to present a sample made from such a bean, but an accident while preparing it prevents my doing so. The artificial product vanillin, while rendering very good service in the making of perfumes, in which it has the advantage over the bean in the absence of color, can never displace as a flavoring extract, despite assertions to the contrary. It lacks the delicate flavor of the natural bean, and if it be identical with the vanillin as it exists in the bean, we must then conclude that it alone is not the essential factor in a good vanilla extract.

To make good syrup for the soda fountain is an easy matter if we have a good extract to work from. The proportion which I have used is 3 ounces extract to the gallon of simple syrup. Vanillin is wholly out of place at the soda fountain. The manufacturers claim that, while we allow an extract made from the bean to stand for months before using, we make one up from vanillin, use it as soon as prepared, and expect it to compare with the true bean. They say, give it age, use syrup, not glycerine, and it will equal the best bean. I do not agree with them, and will only believe it when I actually see one made from vanillin which will equal that prepared from the bean according to the formula which I have given you.

South China Exports.—In the *Pharmaceutical Journal* for January 15, may be found a communication by Dr. Augustine Henry, entitled "Some Exports of South China and Indo-China," in which he treats of the cassias, camphor and star anise. The article is concluded by some remarks on the "needs of economic botany," in which the author points out the great importance of the careful collection by travelers of tangible evidence as to the origin of the commercial products which they encounter.

A KEY TO PRINCIPAL PLANT SUBSTANCES.*

By Rodney H. True.

The following key is an attempt to arrange for ready use in the laboratory the simpler methods of identifying the commoner plant substances. The device that has proved of service in the identification of plants seemed to the compiler capable of adaptation to the present case, and an experimental trial of this key in laboratory practice during the past two years has seemed to confirm this thought. Standard works on microchemistry were used in the preparation of the following, and no claim to originality in subject matter is made.

The manner of use is so simple that explanation seems hardly necessary. Confirmatory reactions, referred to in the key by numbers in parenthesis accompanying the names of the substances, are appended and should be made use of.

One direction must be strictly observed. Each separate reaction demands a *fresh section* and a *clean* slide and cover glass.

Zinc chloriodide.

A.I Color red.
- B.I Cell contents.................................Tannin. (1)
- B.II Cell walls.................................Lignin.†

A.II Color brownish, cell contents............Protoplasm and Proteids. (2)

A.III Color blue.
- B.I Amorphous mass.............................Plant mucilage. (3)
- B.II Granular cell contents.............................Starch.

A.IV Color violet.
- B.I Cell walls.................................Cellulose.
- B.II Cell contents.................................Tannin. (1)

A.V Color yellow.
- Phloroglucin and HCl.
- B.I Rose-colored walls.................................Lignin.
- B.II Uncolored.
  - C.I Unswelled cell walls.................................Suberin. (4)
  - C.II Swelled cell walls or amorphous.
    - D.I With iodine and H_2SO_4, blue...............Plant mucilage. (3)
    - D.II With iodine and H_2SO_4, yellowish or brownish. { Proteids and Protoplasm. (2)

A.VI No color reaction.
- Trommer's reagent. (10)
- B.I Orange-brown precipitate formed (Cu_2O)................Dextrose.
- B.II Deep violet color, no precipitate......................Cane sugar.
- B.III No visible reaction.

* Reprint from Pharmaceutical Review, Jan. 1898, page 9.

† See for confirmation, test with phloroglucin and HCl.

Tincture of alkanet.
C.I Red cell contents.................................Resins. (5)
C.II No visible reaction.
D.I Crystalline bodies.
E.I Crystalline masses, rounded........................Inulin
E.II Crystals distinct, not rounded.
F.I Dissolves in HCl without effervescence.
Treat with dilute neutral $AgNO_3$.
G.I Assumes yellow color........... { Calcium phosphate. (6)
G.II Does not assume yellow color......... { Calcium oxalate.
F.II Dissolves in HCl with effervescence....... { Calcium carbonate.
F.III Dissolves in HCl little or none. (Seldom present in plants).......................... { Calcium sulphate.
D.II No crystalline bodies.
E.I Soluble in cold absolute alcohol, ropy masses.................................Volatile oils. (7)
E.II Insoluble in cold absolute alcohol.
F.I Soluble in ether, spherical masses......Fatty oils. (8)
F.II Insoluble in ether.
G.I Incinerating without ash..............Gums. (9)
G.II Incinerated, leaves ashy skeleton..........Silica.
(Treat with HCl to remove Ca salts.)

CONFIRMATORY REACTIONS.

(1) *Tannins.*

In sections not wetted either with water or alcohol, when placed in ferric sulphate, tannins take on a deep blue or deep green color.

(2) *Protoplasm and Proteids.*

In Millon's reagent a rosy-red color appears after a time, especially after warming.

[Millon's reagent is mercury dissolved in its own weight of conc. nitric acid, the solution then diluted with an equal volume of distilled water. Reagent to be used when fresh.]

(3) *Plant mucilages.*

Usually swell in water. Iodine and H_2SO_4 give either a blue or a violet-brown color.

(4) *Suberin.*

Insoluble in conc. H_2SO_4. In boiling KOH ochre-yellow, granular masses are exuded. Stains blue in aniline violet, especially plainly when color is drawn from non-lignified tissues by use of acidulated alcohol.

(5) *Resins.*

In sections mounted in water, and not previously exposed to alcohol

or glycerin, after several days' treatment with copper acetate, an emerald-green color appears. Hanstein's aniline violet stains resins blue.

(6) *Calcium phosphate and oxalate.*

Test does not exclude salts of other bases, but these rarely occur in plants.

(7) *Volatile oils.*

In sections not previously treated with alcohol or glycerin, these stain red in alkanet tincture. Distinguished from resins by copper acetate reaction (see 5 above).

(8) *Fatty oils.*

Treat section with conc. sulphuric acid and oil drops collect, becoming larger and more conspicuous.

(9) *Gums.*

Usually swell in water. Not colored blue by iodine and sulphuric acid.

[(10) *Trommer's reagent.*

A moderately thick section is placed for from two to ten minutes in a conc. solution of copper sulphate. Surface then quickly rinsed off with distilled water; section then transferred to a boiling mixture of equal parts by weight of water and KOH.]

Digitalis and the Heart Muscle.—The effect of the prolonged use of digitalis on the heart muscle is discussed by Dr. H. A. Hare in the *Therapeutic Gazette* for December, 1897, page 800, having been determined by means of microscopical examinations and measurements by Dr. W. M. L. Coplin, Professor of Pathology in the Jefferson Medical College. A litter of ten pigs, two months old, was procured and carefully assorted as to sex, weight, etc., five of them being treated with normal liquid digitalis, the others cared for in all respects similarly, except that the digitalis was omitted. The average dose of 2m. was given twice daily for a month, and was then regularly increased monthly until, after three months, 10m. was given twice daily. This, according to weight ratio, was equal to about 80m. a day for a man, but no ill effects resulted from the large dose. After four and one-half months the digitalis pigs were found to weigh about four pounds each more than the others, having weighed the same at the commencement of the experiment. Their hearts weighed a little more than half an ounce each above those of the others. The ventricular walls of these hearts were reported by Dr. Coplin as being much thicker, uniformly firmer and cutting with more resistance. The measurement of many muscular fibres showed an average diameter of .02mm. in favor of the digitalis hearts, this being an increase of from 1-10 to 1-5 in their thickness.

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EDITORIAL.

THE NARROWING TENDENCY TO SPECIALISM.

There are two sides to everything. This is an axiom of life, as well as of coins. But it is a funny thing that the man on one side can seldom realize that the man on the other side may be right. Onlookers give each side full credit, but each of the parties interested wants to keep the balance of the credit on his own side. The orthodox brother sees no possible hope for his unorthodox neighbor, but Hellfire; and the unorthodox man denies the possibility of the existence of a fair-minded, rational and charitable opinion in the make-up of his bigoted brother. The political partisan has all the right on his side, and the opposition depends on a carefully assorted pack of lies with which to fool the public. The Jew and the Gentile, the Turk and the Greek are but types of the shifting contrasts in men. To his valet, the orthodoxy or unorthodoxy of his master is immaterial. Is the valet therefore broader-minded? To the impartial citizen with a sale-able vote it is possible to expect fair dealing from either party. Has the impartial citizen, then, a wider point of view?

No; the value of a man's opinion lies in the fact that he is not a mere onlooker, but a worker for the cause he upholds, and the broad-minded man

is not the one who sits on the fence, but the one who has had experience on both sides.

Ignorance is the root of narrow-mindedness. It is the ignorant man who argues that, because his course in life is rational, a diametrically opposed course is irrational. It is the ignorant man who throws away every fact that does not fit into his own experience. It is the ignorant man that knows no scale of proportion by which to judge relative values.

The seeds of narrow-minded opinions and of broad views sprout together, like the wheat and the tares, in the mind of the student to whom the knowledge of the world is being unfolded. It is hard to differentiate them in their early stages.

The student who has no use for a science that he has studied only three months and the one who has no use for anything but that science are alike equally in danger of becoming narrow-minded.

If they are studying medicine, they will probably become "specialists" before they are general practitioners. If they are theologists, they will rivet their fathers' creeds into fetters, or else smash them utterly. If they are students of so-called "pure science," they will have a pitiful contempt for any one who applies the science practically and makes money out of it, and if they are scientific, only from the business standpoint, woe be to the professor, or laboratory worker, or mere writer of monographs that thrusts his unprofitable person into their presence.

There is a woeful lack of tolerance in the educated, a petty jealousy of position, and a bickering spirit of contempt that reminds one of the restrictions of rank in a decaying aristocracy rather than the healthful liberality of the republic of Thought.

An intimate acquaintance with stonecutters and bricklayers might reveal the fact that the one class barely tolerated the work of the other in the building they were both engaged on. A very intimate acquaintance with different groups of scientific men discloses the fact that each man regards his "ology" as the keystone to the universe, and his brother's "ologies" but indifferent supports to his superstructure. To be broad-minded is to be very humble and very well informed. To be broad-minded is to be very silent about one's own work, and very attentive to suggestions from others' work. But, first, last and always, to be broad-minded is to be tolerant of narrow men, and to accept their work, independent of their spirit.

ABSTRACTS.

Mushroom Poisoning.—*Circular No. 13* of the Division of Botany. United States Department of Agriculture, written by Mr. F. V. Coville, Botanist of the Department, is entitled "Observations on Recent Cases of Mushroom Poisoning in the District of Columbia," and is of unusual importance. As the circular may be had upon application to the Department, only its general character is here noticed. It gives brief accounts of a number of edible and poisonous fungi in the vicinity of Washington, and is accurately and beautifully illustrated by 21 cuts, taken chiefly from photographs made by Mr. A. J. Pieters. The following general advice given by the author as to the eating of unknown fungi is well worth quoting:

"Many kinds of fleshy fungi are without question delicious and highly nutritious foods, while the gathering of them is an exhilarating pastime. A novice who proposes to gather mushrooms for himself should never use a species for food until he has found out positively its name and its non-poisonous character. He should then familiarize himself with this species until he knows it from all others as certainly as he knows the cabbage, the turnip, the cauliflower, or any other of our common vegetables. He should confine himself rigidly to this his personal edible list, and should add to it only as thus recommended. His authority for the name and qualities of each kind he adds to this list should be some person having an unquestioned expert knowledge of mushrooms. There is no single test and no safe series for poisonous mushrooms. The poisons contained in the various species are extremely diverse in their physiological effects and their chemical composition. In the District of Columbia occur at least thirty good-sized edible species, at least four species known to be poisonous, and several more that are suspected of being poisonous. Regarding these suspected species, we shall never know the actual facts until some one has been poisoned by them, or till experiments are made on animals to ascertain their physiological effects. Botanists, who from long training in the discrimination of plants possess the faculty of distinguishing readily between related species, will easily avoid the error of mistaking superficial resemblances for the real characteristics of the different kinds, and may be trusted in the identification of mushrooms, if they have studied that group of plants. If there is a mushroom club in the community, every one who proposes to become a connoisseur in mushrooms should join it. In the District of Columbia a recently organized association known as the Washington Mycological Club is recommended. Membership in such a club and a proper use of the facilities afforded by it should prevent the mistaking of a poisonous for an edible species."

Amanita in a Reservoir.—It having been noticed that a fungus grows in very great abundance upon the shores of the aqueduct which supplies the City of Mexico with water, and that the dead bodies of these plants fall into the water in large numbers, the species was examined by Dr. M. Lozano y Castro on behalf of the Instituto Medico Nacional, and found to be *Amanita muscorum*. Its poisonous action on the lower animals was studied experimentally. It was not shown, however, that it is responsible for any of the diseases attributed to the use of the water. (See *Ann. del. Inst. Med. Nac.*, 3, No. 8, Aug., 1897.)

In the same number Dr. Juan Martinez del Campo details his clinical experiments in the Hospital of San Andres with *Artemisia Mexicana, Helenium Mexicanum, Croton morifolius* and *Casimiroa edulis.*

An important contribution to the subject of pepsin-testing has been made by Alfred H. Allen in the *Pharmaceutical Journal*, and this is conveniently reprinted in the *Druggist's Circular* for February, page 33.

Immunity to Alkaloids.— *The American Druggist and Pharmaceutical Record* (January 10, 1896, page 8) refers to the results of experiments by C. Gioffredi, going to show that it is not only impossible to produce immunity in animals against the action of atropine and cocaine, but that, on the contrary, their use in increasing doses tends to develop an increased susceptibility to the action of the poison. In the case of morphine a marked tolerance seemed to be established in dogs. The author found this to be due to the development of an antitoxin in the blood.

Rabies.—The British Board of Agriculture announces a great decrease in rabies among dogs. But 154 cases were returned for 1897, against 438 in 1896 and 672 in 1895. This result is regarded as being the outcome of more careful methods of restaint of dogs and of laws requiring that they be muzzled. Might it not also in part be due to the fact that from better information as to what constitutes rabies, they were able to determine many cases hitherto classed under that disease as being merely epileptic fits or some similar temporary disorder?

Poisoning by Larkspur.—The *N. Y. Med. Jour.* (August 21, 1897) reports on the poisoning of cattle in Montana by larkspur plants before they have yet blossomed. Poisoning is so frequent and severe as to constitute a serious danger. The treatment is ammonia given *per* stomach and by inhalation, with sulphate of zinc. Digitalis and nux vomica have also been found useful.

A Unique Poisonous Plant.—A botanical monograph of unusual interest is contributed by Mr. David Hooper, Assistant Curator, Economic and Art Museum, Indian Museum, on Adhatoda vasica, illustrated by a colored plate, and published as No. 10, Hand-Book of Commercial Products, Im-

perial Series. The fact that the great family Acanthaceae is practically unknown in medicine lends great interest to any member of it which exhibits a reasonable probability of possessing important medicinal properties. In a brief illustrated article on this plant, published in the *Bulletin of Pharmacy* some years since, I stated that its field of probable usefulness was indicated by the fact that it appears to be toxic to both animal and vegetable forms of life in direct proportion to their lowness in the scale, and that this property is unique among plants. In the paper by Dr. Hooper here referred to, all possible information concerning the uses and properties of the plant has been collected, and this has been supplemented by an experimental study, with the result of fully confirming the opinion above quoted. Thrown upon water, the leaves are found to completely destroy the lower aquatics and to prevent their reappearance. Laid upon fruits and other perishable substances, they to a great extent prevent mould and decay. They check the development of parasitic diseases on vegetation. Their very extended use in India in the treatment of tuberculosis and similar respiratory diseases may or may not be founded upon this property. Aquatic animalculae are also killed by them, as are insect pests, including plant lice and plant beetles. They are anthelmintic. They quite readily destroy frogs on being thrown into water in which those animals exist, and they are somewhat toxic to fish. They destroy earth worms and are fatal to white ants. There is little evidence of their toxicitiy to the higher animals, beyond the fact that no pasturing animal will eat them. These qualities have been very clearly proven to pertain to the alkaloid vasicine. While the information collated by Dr. Hooper does not indicate the degree of importance which may be expected to pertain to the drug, it is amply sufficient to place it in the front rank of plants entitled to extended practical trial at agricultural stations and in botanic gardens. The monograph here reviewed may be found in the college library. R.

Silk Cotton Floss.—*The Agricultural Ledger*, No. 17, 1897, is devoted to the consideration of the silk cotton (floss) of Calotropis procera, a product closely related to the floss of our asclepiads or milk-weeds, which has been similarly experimented with from time to time as to its availability for the manufacture of textile fabrics. This fact lends interest in American eyes to the results of all such experiments as those here reported. It is stated that this article was in demand in London a few years ago for fancy textile purposes, but, owing to the difficulties presented by variations in the quality of products supplied, and to the intermittent supply when requirements arose, it dropped out of use. It is further stated that the trade might be revived if a moderate but continuous supply could be guaranteed at prices ranging from four pence to five pence (eight to ten cents) per pound. The pods should be gathered and forwarded unopened, with as little handling

as possible. The fibre is unique for its large percentage (19.5 per cent.) of furfural. This removes it, among fibres, the very farthest from cotton. Its investigation has led to the result of a thorough comparative study of the chemical composition of fibres at the Imperial Institute. R.

Medicinal Plants.—The Museum Department of the Pharmaceutical Society of Great Britain has published a catalogue of its herbarium of medicinal plants, compiled by the Curator, Mr. E. M. Holmes. Not only is a list of the species given, but the composition and source of the different specimens are noted. The collection appears to be decidedly poor in representatives of North American medicinal plants.

Sanicula.—The genus Sanicula, which has always been of more or less medicinal interest through the extensive use in domestic practice, and to a less extent in scientific practice, of several of its species, has been enriched by the addition of two species, described by Mr. Eugene P. Bicknell in the *Bulletin of the Torrey Botanical Club,* December, 1897, page 577. The species are S. Smallii and S. Floridana, both growing in the southeastern United States.

A Research Upon Sarsaparilla.—In the *Medical Chronicle* for May, 1897, Leech gives a summary of the results obtained by Schulz in the Pharmacological Institute of Dorpat by a study of this drug. These researches by Schulz on the composition of sarsaparilla were made prior to 1892, under the direction of Prof. Kobert, who has already set forth the general results obtained in the *Deutsche Medicinische Wochenschrift* of June 30, 1892. In the present paper the full details of the research are given, together with an account of the history and botany of sarsaparilla.

Opinions as to the value of this drug as a therapeutic agent have always differed widely. Even when it was most largely used there were many who, on the ground of experience, denied its potency, and now that it is relegated for the most part to popular or domestic medicine, there are still some who hold, also on the ground of experience, that it has a curative influence in certain forms of disease. It is manifest that if sarsaparilla has such an influence, it must depend on some active substance the root contains, and Schulz's investigations have been made for the purpose of obtaining further information as to the nature of the active principle or principles.

As early as 1824, Pallota, of Naples, separated from sarsaparilla a substance, parillin, which was subsequently obtained in a pure state by Flückiger, who gave as its formula C_{40} H_{70} O_{18} or C_{48} H_{86} O_{18}. This substance has also been called by some smilacin. Otten, in 1876, separated another substance, which Merck has since prepared commercially, viz., sarsaparilla-saponin. To this substance the names of smilacin and sarsasmilacin have

also been given. A third substance, sarsasaponin, has been obtained by Schulz.

These three compounds are supposed to belong to a group of saponin substances, and differ in physical properties and pharmacological powers. Parillin is a crystalline substance insoluble in cold water. It is soluble in absolute alcohol, but in alcohol diluted with water it becomes less soluble as the amount of water is increased. Sarasasaponin is also a crystalline substance, but it is soluble in water. It dissolves only to a slight extent in absolute alcohol. In diluted alcohol it becomes more soluble as the amount of water is increased. Smilacin is soluble in water. As prepared by Merck for commerce, it is amorphous, but it is capable of crystallization. All three substances are glucosids, and when boiled with dilute acid yield glucose and a new compound, which, in the case of parillin, is called parigenin. The other two substances yield sarsasapogenin. Schulz gives a long account of the reactions yielded by parillin and sarsasaponin, which are, however, only of chemical interest.

The pharmacological effects of parillin, smilacin and sarsasaponin resemble generally those produced by the active principles of quillaja bark (quillagic acid and sapotoxin), but they are less toxic. Of the three, parillin is the least powerful, sarsasaponin the most so. When taken by the mouth they cause salivation, nausea, irritation of the throat, vomiting and diarrhea. Injected under the skin, they cause abscess; introduced into the blood, they tend to destroy the red corpuscles, and cause death after the lapse of several hours. They are not absorbed from the healthy stomach, nor when injected subcutaneously. They are excreted when intravenously injected by the intestinal mucous membrane, stomach and kidneys; and Schulz says by the salivary glands also, but he gives no proof of this assertion. Like other saponin substances, they powerfully influence muscle tissue when directly applied to it, causing contraction, rigidity and loss of contractility. The motor nerve and endings seem to be killed earlier than the muscle. When circulated through the isolated heart of a frog, they cause contraction of the muscle tissue, and limit the heart movements. They therefore decrease the volume of fluid expelled by each cardiac contraction, an effect which is the reverse of that produced by digitalis. Eventually the heart's movements cease, but if fluid which contains no poison be subsequently circulated through the heart, it recovers. If added to blood outside the body, they have a powerful influence, causing solution of the red corpuscles. They are in this respect more active than many more toxic saponin-like substances, and it is worthy of remark that, though parillin is distinctly the weakest in its general toxic effects and in its power of influencing the tissues, while sarsasaponin is the strongest, yet in its action on the blood parillin is almost as powerful as sarsasaponin, and dis-

tinctly more powerful than smilacin. Because of this action on the blood, all these substances cause hemoglobinuria and methemoglobinuria; eventually bilirubin appears in the urine. Owing to its effect on the blood, the subcutaneous and other tissues after death have often a yellowish aspect, and the exudations in the cavities are of a reddish color. In warm-blooded animals the intravenous injection of doses which eventually cause death leads to but little change in the blood-pressure or frequnecy of the heart's beat.

The three active constituents of sarsaparilla produce their most powerful effect on the intestinal canal, causing increased peristalsis and injection, sometimes inflammation of the large and small intestine, the contents of which (post mortem) are found to contain bloody mucus. Ulceration of the stomach and intestines is sometimes present. The urine usually contains blood-coloring matter when the animal is poisoned by the intravenous injection of parillin, smilacin or sarsasaponin, and the kidneys are found (post mortem) of a dark-red color, the tubules containing red-colored contents.

It is manifest that the pharmacological effects of the active principles which have been separated from sarsaparilla throw no light on its supposed curative influence on syphilis and other ailments. It is possible, indeed, that the increase in the flow of saliva which the saponin constituents tend to produce may have some beneficial effect in lesions connected with the throat and mouth; perhaps, too, the large quantities of fluid which were at one time taken with sarsaparilla preparations had a beneficial effect. But Schulz's researches strengthen the views entertained by the majority of physicians, that sarsaparilla as a therapeutic agent has no important value. It has no ill effects because its active principles are not absorbed. Does it contain any other active principle which has not been discovered? The care with which the chemical examinations have been conducted by Schulz and other observers renders this improbable. Pereira, indeed, found in it an essential oil, but as 140 pounds only yielded a few drops, it is hardly likely that this constituent gives efficacy to the drug.—*Therapeutic Gazette.*

Digestive Ferments.—Prof. Chittenden has shown that potassium permanganate, borax, ammonia alum, sodium salicylate, quinine and the salts of most alkaloids act antagonistically to the peptic ferment; while Dr. H. A. Weber's experiments have proved that the so-called harmless colors—aureoline yellow and magenta—arrest digestion, even when taken in very minute quantities. Further experiments in the same direction have been conducted by F. D. Simons (*Phar. Jour.*, No. 1,431, p. 457), who finds that peptic digestion is retarded even after prolonged treatment by picric acid, tropaelin 000, and metanil-yellow; pancreatic digestion being retarded in like degree by Bismarck brown, essence of cinnamon and formic aldehyde.

Salicylic acid and wintergreen oil were found to retard peptic digestion in a less degree, but both peptic and pancreatic digestion proceeded normally in the presence of essence of peppermint, chrysoidine, salfranine, or methylene-blue.

The Phenylhydrazin Test and its Adaptability for the Detection of Sugar in the Urine.—Dr. Erik Holmgren *(Upsala lakareforen. forh., N. F. II., 1897)* conducted experiments for the purpose of comparing the delicacy of Almen's (bismuth) and the phenylhydrazin tests, and to determine how far normal urine, which, according to recent researches, always contains some grape-sugar, gives positive evidence with the phenylhydrazin test. His experiments showed, first, that the phenylhydrazin test is decidedly more delicate than Almen's test. While less than 0.05-0.04 per cent. sugar could not be detected with the latter, the former still gave a distinct reaction with this amount. In the phenylhydrazin test a sugar-content of 3:100000 water gave, after a short time, a distinct macroscopic precipitate of glycosazon crystals; a solution of 1:100000 gave a precipitate which could not be demonstrated by the microscope; indeed, with strong magnification, the author could still detect glycosazon crystals in a solution of 1:300000. The phenylhydrazen test, therefore, is the most delicate test for grape-sugar.

Of disturbing influences, the author noted that alkaline reaction disturbs the result, and that great concentration of the urine appears to require larger amounts of the reagent in order to obtain the best results. The age of the individuals from whom the urines were obtained did not appear to exert any influence; but it appeared to the author as if the urine of persons engaged in muscular labor contained more crystals than that obtained from those engaged in mental labor.

In determining with absolute certainty the presence of sugar by means of the phenylhydrazin test, the miscroscopic demonstration of the crystals does not suffice; on the contrary, the melting point of the crystals must be obtained, which for the osazon of grape-sugar is 205 degrees C. The author determined the melting point of the crystals obtained from normal urine and found that the carbohydrates which enter the urine under normal conditions probably consist, to no small amount, of pentoses. The author thinks that the fact that such numerous and typical osazon crystals are found in the urine of perfectly healthy individuals as to make it doubtful whether the urine is really normal or not, as well as the necessary, difficult and time-robbing confirmation of the evidence as to whether grape-sugar is present or not, renders the phenylhydrazin test inapplicable in ordinary practice.

Facts Concerning the Chemistry of Chlorophyll and Hemogolobin—In the course of an address at the sixteenth annual meeting of the Society of Chemical Industry, held in Manchester on July 14, 1897, the Presi-

dent, Dr. Edward Schunk, in speaking of organic coloring matter *(Jour. of the Soc. of Chem. Indus.)*, said that by the action of strong acids on chlorophyll a certain product is obtained, and the action of alkali on this product, in sealed tubes, leads to the formation of phylloporphyrin, a substance crystallizing in lustrous-red needles, which has remarkable properties. Treated in a similar manner, homoglobin yields an analogous substance—hematoporphyrin. Now, these substances, phylloporphyrin and hematoporphyrin, resemble one another in several respects in a most remarkable manner. Both are red and give red solutions; both act the part of weak bases toward strong acids; both when heated give off fumes of pyrrol; the ethereal solutions of both show absorption-spectra of seven bands, the intensity and relative position of which are in both cases absolutely the same, the only difference being that in the case of hematoporphyrin the bands are slightly nearer the red end of the spectrum. As to composition, too, the two substances approach one another, that of phylloporphyrin being expressed by the formula $C^{16}H^{18}N^{2}O$, that of hematoporphyrin, according to Nencki, by $C^{16}H^{18}N^{2}O^{3}$; they differ, therefore, in the amount of oxygen they contain.

BOOK REVIEWS.

The Bulletin of Miscellaneous Information of the Royal Botanical Gardens of Trinidad, Volume IV., Part V., is devoted to the consideration of two genera of the ferns of the British West Indies and Guiana, viz., Hymenophyllum and Trichomanes. The subject may at first appear rather a strange one for investigation by an institution devoted to the subject of economic botany, but, in consideration of the extensive use to which these plants are put for decorative purposes and the great value of the trade in them, it becomes quite as practical as those relating to foods, fibres or building materials. R.

U. S. Department of Agriculture Reports.—The report of the botanist of the United States Department of Agriculture, Mr. Frederick V. Coville, for 1897, is full of interesting references to the work of the year. The most important feature of the report is the evidence which it displays of a useful application of science to practice. The principal topics referred to are the investigation of new crops, the examination of the natural resources of the country, the development of an economic herbarium, the eradication or weeds, the investigation of poisonous plants, seed testing and investigation, the support of the pure-seed movement and the study of the American medicinal flora. The needs announced for the ensuing year are those of a new building, of permanent trial grounds and of more assistance in the Department, all of which we sincerely trust may be fully met. R.

Alumni, College and Class Notes.

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Annual dues, one dollar, payable quarterly, no initiation fee. Have you settled with Secretary-Treasurer Erb (539 East 88th Street)?

Race-Meet.—A meeting will be held in the College on Wednesday evening, March 9th, at 8 P.M., for the purpose of formulating plans for the spring race-meet, which will be held in this city some time in April. Members are earnestly requested to attend.

"Jake" Stage, writing from Baltimore, says that he will be with us in April. We can assure our '97 champion a hearty welcome as a slight mark of appreciation for services rendered last season.

The *Era* had an interesting article about our Club and its history in the February 10th issue. Have you seen the article?

The Stag, held on January 29th, was voted "all right" by the guests of the Club, who assembled in the Alumni Room, at 8.30 P.M., to witness the event. Dr. Gies led off by introducing Prof. Szuski, the noted Egyptian prestidigitator, whose feats of legerdemain were worthy of the late Prof. Herman. Berndt was the first subject of the professor, taking his medicine like a man, until the arrival of our portly Schuyler, who evincing an interest, was induced to masticate a "night extra," which was accomplished in record-breaking time. Elated over his success, he allowed himself to be hypnotized (?) with disastrous results.

Then followed a "gag competition," which became quite spirited, owing to the resources of Messrs. Benjiman and Cantor, who vied with one another for the best prize (bottle of Best Tonic), the event finally being won by Benjiman. Bro. Keenan, of the *American Druggist*, endeavored to spring a Gies joke on Stoburg, but unfortunately got "twisted."

The arrival of Mr. Pond, with a gramophone of the latest output, was greated with applause, and in a few minutes the boys were lost in dreamy selections from Wagner and other celebrities. Midnight marked the close of the happy event, when amid a cloud of smoking tubes they sought their respective abodes.

Among those present were Pres., Nelson S. Kirk; Vice-Pres., Rudolf Gies; Sec'y-Treas. and Capt., L. G. B. Erb; Lieut. Harry B. Ferguson; Color Bearer, O. N. Frankfurter; Dr. Diekman, Dr. Hoburg, Messrs. Pond, Sasse, Drollinger, Cohn, Sigel, Berndt, Benjiman, Cantor, Moore and W. Frankfurter.

Miss Leroy, '99, is a valuable addition to our ranks. Her deftness of manipulation being only exceeded by her charming personality. SCORCHER.

'94 NOTES.

Married.—Hieronimus A. Herold, the happy event occurred a short time since and quite surprised us. To the couple we extend our hearty congratulations.

Mr. and Mrs. J. Henry Wurthman are doing bravely. They have attended several of the Alumni receptions, including the ball, where our proud classmate's handsome wife has gained a host of friends. To them we say "bravo" with a wish that they may continue in the path.

Poor Fendler! I learned from a colleague that the B. M. C. boys on one of their recent larks captured him and, cutting off his whiskers on one side, left the remainder and made him recite poems. Verily, his end while in the monumental city, has been any but a happy one.

The Alumni Ball was just lovely. Those who missed it have cause, indeed, to regret their negligence. Our class was well represented by Dr. Geisler, Messrs. Wurthman (and Mrs. W.), Erb, Kellar, Kirk, Dawson, Pond, Sieman and, last but not least, Sergt. Davies.

Paul Koch, formerly with Scherpich on Bushwick Avenue, is now with Speth, Kosciusko Street and Broadway, Borough Brooklyn.

Dr. Geisler has accepted a position with Rieger, 155th Street and Amsterdam Avenue, where he is in charge owing to Mr. Rieger's illness.

Henry Struck has left Marcus, where he had been for some time, and is as yet not located.

Dawson made his semi-annual appearance on the 9th. He is looking quite well and reports a clean bill of health. Fraser & Co. still cherish him.

One of our boys has become quite chummy with a scientific boxer. Not of the Fitz. style, however, for the chum is an undertaker.

'99 NOTES.

As in the last number of this journal stated, E. J. Ward composed a march. It may be interesting for fellow students to note that this march, "Avis," can now be had at Chas. H. Ditson & Co., 18th Street and Broadway, who are publishing it.

Geo. W. Jackson (Vice-president) last week took two very good groups of some of the boys with his *poco*. In my judgment the pictures were good enough for a professional. The boys think the same.

Through the kindness of Fuhr (Sect. II.) Prof. Coblentz exhibited the large Ruhmkorff's foil to the class. Many thanks, Fuhr.

Alumni Ball brought a good many of our boys out. Keep it up, boys!

Keefer (Fitz) spent Washington's birthday in Scranton, Pa. Leaving New York on Saturday afternoon, he made the best of it in Scranton until Wednesday evening.

Michel enjoyed this year's Arion ball very much. (One of the "400.")

Wettlin is now an able promoter of well-attended meetings at the Students' Club every Saturday afternoon. Last week he introduced us as the speaker of the meeting Mr. Taylor, of Colgate College, who addressed the boys with a few well-chosen words.

Hager must be under some hypnotic influence, for he is at the same boarding house that he was a week ago. Stick to it, Hager. Perhaps he may be busy writing out war plans.

Pres. Johnston has appointed a committee on class pins, consisting of the Messrs. Fuhr (II.), Mr. Clark (III.), Mr. Vars (I.)

Committee on Athletics: Chairman Clark (I.), Jenkins (II.), Taddiken (II.), France (III), Rolfs (III.)

Section II. need not boast of having musical talent, as there are others.

Clara F. Ehlin.

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VOL. V. NEW YORK, APRIL, 1898. NO. 4.

SOME NOTES ON THE PHARMACOGNOSY OF ERGOT.

BY SMITH ELY JELLIFFE, M. D., New York.

Much has been written about ergot, and yet it is safe to assume that much of its pharmacognosy is still little understood, and as for its pharmaco-dynamics, we are still in the dark. That this should be so is not surprising, when one recalls what the drug is, and bears in mind the complex problems of plant chemistry in a group of plants which have a very simple morphology, and yet are the exponents of a very subtle series of chemical interchanges. Representing as it does one of the few really potent drugs of the lower plants, its study has always been alluring as well as suggestive.

The following sketch aims to give a resumé of what is known of the pharmacognosy of this drug, including the deductions of the more recent studies:

As defined in the Pharmacopoeia, Ergot is the sclerotium of *Claviceps purpurea* (Fries), Tulasne (class *Fungi*), replacing the grain of rye, *Secale cereale* Linne. (Nat order *Gramineae*). The Pharmacopoeia further directs that it should be but moderately dried, and should be preserved in a closed vessel, and a few drops of chloroform added from time to time to prevent the development of insects. When more than one year old it is unfit for use.

At the present, two forms are commonly sold in our markets: the German and the Spanish. Within recent years a very fine variety from the Canary Islands has been described by C. Umney.[1]

DEVELOPMENT.

This fungus grows upon the rye, although it may grow upon other

[1]From Merck's Report, March 15, 1898.

[2]Pharmaceutical Journal, 1895, p. 546.

grasses, and sometimes upon sedges. Many allied forms are extremely common on these large groups of plants. As in all fungi, the plant starts as a minute spore. In moist, warm weather this spore germinates and sends out a small, thread-like process, the mycelium. If a suitable food supply is found—a head of rye, for example—this mycelium increases rapidly, and gradually works its way into the fresh and juicy kernels of the rye, robbing the nourishment of the rye in order to build itself. While in this stage it is soft and gelatinous, usually a pale yellow, and sweet and attractive to some insects. Botanists give this stage a distinct name, calling it *Sphacelia segetum*. The microscope shows that this brownish or yellowish sphacelia is made up of a mesh of mycelium threads and a number of small round bodies (the conidia), borne on elongated branches. These conidia are capable of producing infection and perfecting the sclerotium stage.

This soft stage does not last long, for, as the mycelium grows, it replaces more and more of the tissue of the rye, becomes darker in color, until finally it is a deep violet-brown, and gets much harder. In this stage almost the entire grain is replaced by the growing tube-like cells of the fungus (the sclerotium), the result being a growth larger than the normally developed grain. During this, the resting stage, the ergot should be gathered, slightly dried, and then kept from further drying and from the ravages of insects.

After a varying length of time (from two to five months), the ergot, if left in the fields, may send up a number of small column-like masses, bearing at the apices little spherical knobs resembling pin-heads. These are the fruit-bearing bodies. They show in the surface a great number of minute pin-point openings, which lead into hollow conceptacles, called the perithecia. These perithecia contain a number of minute flask-like bodies, the asci, in each of which are eight long, rod-like spores. These spores are capable of starting over again the life cycle of the fungus. It is during the stage of the ripening of the heads of the perithecia that the sclerotium shrivels and loses its valuable constituents; hence the necessity of gathering it in the resting stage.

Ergot is distributed largely, being found in Middle Europe, in Southern Russia, Spain, Northwestern Africa, India, the Canary Islands and Peru. It is common in Norway, and also in the Faro Islands, and is found on high mountains and in deep valleys.

COLLECTION.

The ergot is gathered shortly after the ripening of the rye, and the affected grains are picked singly from the spike. The greatest amount comes from Russia and Spain, and the United States is the largest consumer.

Although *Claviceps purpurea* alone is official, and then only when grown on the rye, there are a number of other species growing on various host-plants. *Claviceps microcephala* is common on species of Scirpus and *Claviceps nigricans* on a sedge, *Heleocharis.* On corn a peculiar fungus, the corn smut *(Ustilago maydis)* is found. Although it was formerly held that the ustilagos had no relation to the ascomycetes, Brefeld[2] has recently shown that *Ustilaginoidea oryzea* and *U. setariae*, occurring on rice and species of Setaria, are developmental stages of an ascomycetous fungus related to Claviceps.

ANATOMY AND HISTOLOGY.

The general characters of ergot are too well known to require a detailed description. The grains should be somewhat moist and purplish-black externally; inside they are whitish, with irregular purplish lines. The fracture is short, and not very sharp. The odor and taste are disagreeable and oily in character.

Microscopically, ergot has but few characters. On transverse section the periphery shows a false parenchymatic sheath, deeply stained, the cells of which are somewhat square, and merge gradually into the irregular interwoven mass of thread-like cells which make up the body of the fungus. Numerous globules of oil are seen in and around the meshes of the mycelium. An hour's application of Schweizer's reagent permits one to tease the tissue apart, when its true interlacing, thread-like character is made more conspicuous. The cellulose is insoluble in this reagent, a characteristic of fungus cellulose.

CHEMISTRY.

One of the most interesting and yet at the same time unsatisfactory chapters in the history of ergot is that on its chemistry. It is a record, one might say, of the disputes of the different pharmacological schools.

Vauquelin (1817) was one of the first investigators, and since his day a great number of constituents have been described. As it would not be profitable to review every step of the work, only the more important investigations will be noted.

The constituents about which there has been little dispute are as follows:

(1.) Salts.—Mainly phosphates of calcium, potassium and magnesium, with traces of manganese: from 3 to 4 per cent.

(2.) Carbohydrates.—Glucose, trehalose, mannit and micose; the exact equivalents of which are not yet definitely determined (Würtze claiming that trehalose is the same as micose).

[2]Botanische Centralhalle, 1896, p. 97.

(3.) Oils and fats, in large proportions.

(4.) A body allied to cholesterin—named by Tanret "Ergosterin"; but it is probable that Salskowski's investigations are nearer the truth. He calls this body, after Hesse, "Physosterin," and shows that it is widely distributed in plants.

(5.) Coloring-matter.

(6.) Nitrogenous bodies—choline, lecithin and albumin.

(7.) The active constituents.

The structure of these active constituents is still a matter of much controversy. The most important investigations are those of Tanret, Dragendorff, Schmiedeberg, Kobert, Grünefeld and Jacobi. In this connection it may be of interest to know that in Grünefeld's latest paper *(Arbeiten aus d. Pharmakologischen Institut zu Dorpat,* VIII., 1892, p. 108), a bibliography of 372 titles of articles on ergot is given.

Tanret[5] described an alkaloid, Ergotinine, as the active constituent; and most of the French writers to this day adopt his dictum. Dragendorff and Podwissotzky[6] isolated a Sclerotic acid, which they claimed to be the active constituent.

In 1884 Kobert published a monograph on ergot, in which he comes to the following general conclusions as to the constituents:

(1.) Ergotinic Acid (the ergotic acid of Wenzell, and the sclerotic acid of Dragendorff), which paralyzes the spinal cord and brain, and has the composition of a glucoside containing nitrogen.

(2.) Sphacelinic Acid, an acid resin, the cause of the typhoid form of chronic poisoning.

(3.) Pikrosclerotine, a poisonous alkaloid.

(4.) Cornutine, an alkaloid which is a most active uterine contractor.

Among other things, he there comes to the conclusion that there are two particularly active constituents in ergot: Sphacelinic or Sphacelic Acid and the alkaloid Cornutine. Both substances were found as brownish masses, and their exact chemical nature was not stated. He at that time held that cornutine was a highly toxic agent, and that the acid was non-toxic, but acted mainly upon the blood vessels; later he modified these views, and in the appendix of an article by one of his pupils, Grünefeld,[7] gives his present point of view, and also adds a word of commendation upon a recent investigation made by Keller.[8] In this later communication

[4]Fresenius Zeitschrift, 1887, p. 572.

[5]Annalen, cxcii, 1878, p. 175.

[6]Fresenius Zeitschrift, f. analyt. Chemie xx, 1881, p. 123.

[7]Arch, f. Exper. Pathol, u. Pharmakologie, vi, 1876, p. 163.

[8]Arbeiten aus d. Pharmakog. Instit. zu Dorpat, 1895. p. 301.

[9]Schweiz. Wochenschrift f. Chemie u, Pharmacie, 1894. p. 15.

he points out the difficulties of the subject, and states that he believes his cornutine to be a mixed extract free from sphacelinic acid.

Keller claims that there is a single active constituent of ergot. This, he believes, is an alkaloid. He further maintains that pikrosclerotine of Dragendorff, ergotinine of Tanret and cornutine of Kobert are identical.

The latest important contribution to the question is that of Jacobi.[9] He points out the inconsistency of Kobert's change of position, which he states was not founded upon any new investigations on the chemical nature of the ergot extracts, but because the therapeutic action of the extracts did not correspond to Kobert's own earlier teachings.

Jacobi isolated at least three important principles:

(1.) A yellowish, non-nitrogenous body, which, when well purified, was found to be inactive, but when impure had an action on the comb of fowls similar to Kobert's sphacelinic acid. This he calls "Ergochrysine."

(2.) An alkaloid which he states is inactive when in a pure state; this he has named "Secaline."

(3.) A peculiar resinous body.

For this peculiar resinous body he adopts Schmiedeberg's term, "Sphacelotoxine" (a term originally applied by Schmiedeberg to a substance which was said by him to be in Kobert's cornutine). This sphacelotoxine represents the active constituent of the drug. It produces the action on the blood vessels resulting in the gangrene, and also the specific action on the uterus. Thus far in his researches he has not been able to obtain enough of this body to determine its exact chemical composition, as it is present in very minute quantities only. Moreover, it is a very unstable substance, but combines very readily with the two principles found in ergot, and here isolated for the first time, i. e., secaline and ergochrysine. Its compounds with these two bodies are termed respectively "secalintoxine" and "chrysotoxine." It is with these comparatively stable compounds of sphacelotoxine that Jacobi carried on his pharmacological studies.

Chrysotoxine, which is the combination of the neutral non-nitrogenous base, ergochrysine and sphacelotoxine, is obtained by precipitation from the ethereal extract of ergot, after getting rid of the fat, with petroleum spirit. It is a yellowish powder, without smell or taste, readily soluble in ether, chloroform, alcohol or benzine; insoluble in water. It crystallizes with difficulty and its formula is $C_{21}H_{21}O_{16}$. Jacobi regards it as a phenolic substance allied to anthracene or phenanthrene. It is the body called "Spasmotin" in one of the author's earlier contributions.

A thorough pharmaco-dynamic study of this body is given by the author. On the frog's heart it acts, in doses of from 30 to 50 mg. ($\frac{1}{2}$ to 5-6

[10]Archiv. f. exper. Pathol, xxxix, 1897, p. 85.

grm.), as a gradual central paralyzant, without any convulsive action. On fowls there is a change in the circulation, which produces a violet coloration of the comb, followed by a dry gangrene. It causes a decided gastro-enteritis in fowls, dogs and cats. In dogs, cats and guinea-pigs it produces great restlessness. In pregnant animals doses of from 0.1 to 0.2 gm. (1½ to 3 grm.) produce regular contraction of the uterus, resulting in abortion. It slightly raises the blood pressure. Elimination takes place for the most part through the intestinal canal. No convulsive action of any kind was noticed. Secalintoxine, the compound of secaline and sphacelotoxine, is obtained by shaking the ethereal extract of the first precipitation, by petroleum spirit, with dilute acetic acid, and adding sodium carbonate, when a grayish precipitate is thrown down, which by subsequent washing can be obtained as an almost colorless powder. This contains nitrogen, is freely soluble in alcohol and in acetic ether, insoluble in petroleum spirit. Its formula is $C_{13}H_{24}N_2O_2$.

Secaline was obtainable in a pure state, and its formula calculated as $C_{29}H_{55}N_6O_{14}$. It was physiologically inactive. Jacobi believes this to be a pure form of Kobert's cornutine, but not the same as Tanret's ergotinine, which he thinks is more like his secalintoxine.

The pharmaco-dynamics of secalintoxine is similar in most respects to that of the chrysotoxine, the difference being quantitative rather than qualitative. The action on the uterus is less energetic, and the accompanying irritation of the intestinal canal more marked. Thus, it is to be noted that chrysotoxine is the preferable combination to use, and that probably a sodium preparation of this will give the best results on the uterus with a minimum amount of stomach disturbance.

A CASE OF HYOSCINE INTOXICATION.

By Augustus A. Eshner, M. D.
Professor of Clinical Medicine in the Philadelphia Polyclinic, Physician to the Philadelphia Hospital, etc.

Hyoscine is in many respects such a useful drug, and one so extensively employed, that any untoward effects resulting from its medicinal employment seem deserving of record. I wish in this connection to relate briefly the case of a man, fifty-five years old, for many years a sufferer from asthma, who received at 10 P. M., by hypodermic injection, for the relief of a spasm:

Morphine sulphate, 1-8 grain;
Strychnine sulphate, 1-60 grain;
Hyoscine hydrobromate, 1-100 grain.

In a few minutes a small measure of relief from the asthmatic difficulty and distress was experienced, but in a few more minutes there was noted extreme muscular weakness, which quickly progressed to a state of general relaxation, with loss of consciousness. The face was markedly flushed and the vessels extremely prominent. The action of the heart was excited, although the rhythm was not disturbed, and no adventitious sounds were audible. The pulse was hard, tense and full, and the beat about 120 to the minute. The respirations were noisy and labored, and about 40 to the minute. The pupils were of ordinary size. The patient could not lie recumbent, and attempts to get him into bed were desisted from in consequence of the resulting apparent discomfort. There was occasionally slight twitching of the hands, and the knee-jerks were irritable and, perhaps, a little increased. The patient could be aroused to partial consciousness, but he was not able to speak. At times he made certain incoordinate movements and gestures, apparently indicative of his distress and his wishes. He could not be induced to swallow, and his teeth were found clenched when an effort was made to introduce bits of ice into his mouth. The skin was moist and cool, and free perspiration followed.

As the patient had on former occasions received without ill results as much as one-fourth of a grain of morphine sulphate hypodermically, and as the symptoms were unlike those of strychnine poisoning (the dose of strychnine being a small, even medicinal one), and corresponded with those to be expected from hyoscine intoxication, a further dose of one-eighth of a grain of morphine sulphate was injected beneath the skin, and a third dose several hours later. An addition, amyl nitrite was administered by inhalation. The patient gradually improved, consciousness and power of speech and motor capability slowly returning.

At seven o'clock in the morning, nine hours after the injection, the patient was unable to recall anything that had taken place during the night, and expressed himself as having passed through a comfortable period. He was yet unsteady upon his feet, and was unable to pass more than a drachm or two of urine. A specimen from a larger quantity passed during the subsequent day had a specific gravity of 1,024, and, although failing to respond to the heat and contact (nitric acid) tests for albumen, contained numerous hyaline and granular casts. Albumen and casts had also been found previously. The patient had on former occasions taken by the mouth, without unpleasant manifestations, as much as 1-80 grain of hyoscine thrice in the course of a night. The pronounced symptoms that thus developed from the hypodermic employment of so small a dose as 1-100 grain of hyoscine hydrobromate must be attributed to idiosyncrasy, the undue susceptibility being perhaps intensified by the somewhat de-

bilitated condition of the patient at the time. Of course, it is possible that the tablet used contained more than the quantity named, but this is highly improbable.

Untoward results have been reported from the hypodermic employment of even a smaller dose of hyoscine. Thus O'Hara *(Therapeutic Gazette,* Vol. 2; cited by Wood: "Therapeutics," 7th Ed., 1888, p. 237) relates a case in which the administration of 1-96 grain hypodermically was followed by severe disturbance, lasting for twenty-eight hours, with total lack of remembrance of occurrences that took place during the seven hours succeeding the injection. Root *(Therapeutic Gazette,* Vol. 2; cited by Wood, *loc. cit.)* records a case in which 1-300 grain administered by the mouth gave rise to symptoms of violent poisoning, and even 1-1,200 grain occasioned very pronounced manifestations. Gnauck *(Medical News,* xl., 323; cited in the "National Dispensatory," 5th Ed., 1894, p. 855) states that even a very minute dose (1-600 grain) of hyoscine is capable of producing its characteristic effects, and, subcutaneously, of acting twice as powerfully as by the mouth. On the other hand, Hutchinson *(Alienist and Neurologist,* iii., 539; cited by Wood, *loc. cit.)* reports that the ingestion of one-quarter grain of very impure hyoscine was followed by quiet coma, with entire muscular relaxation, lasting eleven hours. Further, according to Wood, no case of fatal poisoning is on record.

In explanation of the widely diverse results obtained from the use of hyoscine, it must be concluded that different preparations of the drug vary greatly in activity; while some significance is to be attached also to the matter of idiosyncrasy. The best antidote for hyoscine is said to be chloral ("National Dispensatory, p. 587); Hare (Therapeutics, 5th Ed., 1895, p. 209) recommends pilocarpine.

STIMULATION OF THE GASTRIC MUCOUS MEMBRANE TO AID IN THE ABSORPTION OF IMPORTANT DRUGS.*

By H. A. Hare, M. D.

I have already called attention in an earlier article to the importance of studying the rapidity of absorption and elimination of drugs in connection with their general physiological effects and their dosage.

In certain states of profound vital depression the gastric mucosa does not carry on its functions of absorption as it does in health, and as a result we recognize the fact that the use of a drug by the mouth will prob-

*A paper presented to the Section on Medicine of the College of Physicians of Philadelphia, March 5 1897.

ably produce no effect, because it will lie unaffected in the stomach for hours. Thus in surgical shock or in advanced alcoholic coma it is not by any means rare to find that repeated doses of drugs have been given with no result for the time being, but as the patient recovers, and absorption is renewed, the greater part of the combined doses is absorbed at once, and the patient is more or less poisoned by the aggregated medicinal doses which he has received. While it is true that patients in this condition, if skillfully treated, rarely meet with this accident, I believe that in many other instances, where the state is less grave, the slow absorption of the medicines given is not considered; that the physician is content to give the medicine, and then to regard it as physiologically active, without considering the possibility of gastric torpor. In some chronic conditions the slow absorption of a remedy is not disadvantageous, but in acute cases its absorption may be of vital importance. It therefore occurred to me that it might be possible to combine with a remedy another substance not possessed of general physiological action, but capable of stimulating the gastric mucous membrane so that it would have its absorption functions increased. It is well known, of course, that iodide of potassium, when absorbed, is speedily eliminated by the salivary glands, probably in the form of iodide of sodium. Different investigators have studied the rapidity of this elimination, and have found that it usually begins in from ten to fifteen minutes, or a little longer, and lasts over many hours. The iodine can be tested for in the saliva by means of starch paper and fuming nitric acid, which will set free the iodine, so that the iodine-starch test can be made. Another method of testing the rapidity of absorption would be by the administration of rhubarb and developing a red color in the urine by the addition of liquor potassa, but as the test should be made every few minutes, it is much easier to use salivary secretion as a testing medium.

The methods used were as follows:

Cachets containing three grains each of iodide of potassium were given to four patients in the wards of the Jefferson Medical College Hospital, none of whom were suffering from any known gastric lesion or functional disturbance, and convalescent. In other words, the stomach of each was in a condition equal to that met with in the ordinary patient. After the lapse of a few minutes the saliva of each was tested with starch and HNuc^{3} every two minutes until the reaction for iodine was obtained. It was found that the reaction was obtained at the following times:

In the case of the patient G. D. the iodine test was obtained in twenty-nine minutes.

In the case of the patient B. it appeared in thirty-five minutes.

In the case of the patient L. it appeared in nineteen minutes.

In the case of the patient McD. it appeared in twenty-seven minutes.

The delay in the appearance of the iodine in the saliva over the delay usually met with is due to the time required for the cachet to be dissolved and set free the iodide of potassium in the stomach. The use of the cachet was, however, necessary in order that the drug might be given in a soluble form, and yet not remain in the mouth even as a trace.

The same patients several days later, after all trace of iodine had disappeared from the saliva, received a second set of cachets, in each of which were placed not only three grains of potassium iodide, but in addition one grain of powdered capsicum, and the results reached were as follows:

The patient G. D. gave the iodine reaction in nineteen minutes, or ten minutes sooner than before.

The patient B. gave it in twenty-nine minutes, or six minutes earlier

The patient L. gave it in nine minutes, or ten minutes earlier than before.

The patient McD. gave it in forty-five minutes, or eighteen minutes later than before.

Whether this last result depends upon the unknown prior ingestion of food or drink could not be discovered.

In order to make a control experiment with this case, another test was made several days later, after all iodine had disappeared from the saliva, with the result that the test was developed in seventeen minutes, a gain of ten minutes over the test without the capsicum.

It is evident, therefore, that the use of a gastric stimulant aids very materially in the absorption of the other drug, and the moral would seem to be that whenever it is possible it is well to combine with a drug some gastric stimulant to aid in its absorption. This is particularly necessary if there is any reason to believe that the stomach is in a state of atony, as evidenced by a relaxed tongue and a history of excessive eating or drinking or chronic catarrh.

Iodide of potassium is a drug which lends itself readily to such experiments, but it is probable that other remedies could be studied equally readily.

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EDITORIAL.

MATERIA MEDICA AND THE DOCTOR.

There was a day, in the dark ages, when the physician went out into the woods and fields and collected his own herbs and roots. He brought them home and dried them, distilled their properties out in mystic fashion, sometimes with the aid of an incantation, and always at the proper phase of the moon that the drug required for its special efficacy.

At the present day, in the bright light of science, the physician sits at his office desk, and scrawls a well-worn formula on a scrap of paper, and commends it to the care of his patient; or, taking from a set of numbered vials a pill whose particular numeral is calculated to allay the pangs of that particular patient, he leaves it by his bedside, confident that he has shown a discrimination in his treatment of the case that is as up-to-date as the proprietary production he is prescribing.

Materia medica is a thing of the past. An intimate knowledge of drugs, of the barks and roots they come from, of their chemical constituents and of their physiological effect is virtually unknown to the average practicing physician.

He wants to press the button, and have the right remedy for the disease drop out of the slot, all nicely prepared in palatable form. He is the "practical" man, the man that believes in making use of all quick roads to suc-

cess, and who cries down, as a theorist and a book-doctor, the man who goes delving after deeper knowledge.

Occasionally, an accident resulting from a physician's prescription gets into the papers. But it is not his fault; it is the druggist's. The physician is too omnipotent, too highly educated, too astute, and too careful to make such an error. It was the stupid clerk, that did not know calomel from bichloride. The truth is, that most physicians have less practical knowledge of drugs than the youngest pharmacy graduate. Their knowledge is purely empirical; because a certain formula has been potent in certain cases, they apply it to others, and the variation in effect they put down to the idiosyncracy of the patient. Their college course does not give them any idea of the fact that some drugs are largely adulterated, that certain medicinal elements are present in plants to a greater degree at one season of the year than at another, that many preparations undergo chemical changes if exposed to the light, that others are rendered absolutely useless if they stand for a certain time on the shelf, by virtue of moulds and bacteria which attack them. All these facts are deemed trivial, because the physician has not looked into them.

He will gravely discuss the different effects that the same drug has upon different people, not knowing that, in apparently the same dose, one person had taken twice as much as another; and in the case of accidental loss of life he will argue the limit of the dose, the limit of the pharmacist's accuracy, the limit of people's credulity, but never the limit of his own knowledge of the subject.

Many serious mistakes are made by physicians that are attributed to the course of the disease, and are never discovered, because they are not fatal, and the few fatal cases are rarely laid to their door.

The fact, nevertheless, remains that materia medica is not thoroughly taught in the medical colleges of this country. The professors are not experts upon their subjects. The study is reduced to a dry accumulation of facts which no student attempts to remember after examination time. A few lectures upon therapeutics are thought to cover this subject, which could, and which should, be developed into a practical and tangible course. The individuality of the drug should be enforced by its origin, its manufacture, its chemical action and its peculiar physical properties.

The whole subject of physiological chemistry is progressing with such strides that it is impossible to say what changes will take place in the materia medica of the future. This one thing is certain, that the medical man must acquaint himself better with the nature and action of drugs, and he would do well to invoke the shades of his ancestors of the middle ages rather than to trust himself unreservedly to the makers of pills and potions.

ABSTRACTS.

A Study of the Action of Aconite on the Mammalian Heart and Circulation.—In the September issue of the *Journal of Experimental Medicine* S. A. Matthews sums up a careful experimental research made upon the hearts of dogs in the following manner:

The action of aconitine on the dog's heart seems to consist in:

1. A stimulation of the inhibitory mechanism, especially of the centres in the medulla oblongata.

2. An increase in the irritability of the muscle of the auricle and the ventricle, which leads to independent contractions of one or both of these divisions, and culminates in fibrillary contractions in the ventricle.

The first of these is the only effect seen in the therapeutic use of the drug, and aconitine may therefore be considered to be indicated when it is desirable to stimulate the inhibitory centre without acting on the heart muscle. Of course, it has a further effect on the circulation through the stimulation of the vasomotor centre, but this would appear to be of minor importance.

Diuretic Action of Salicylic Acid and Caffeine.—Siegert (*Munchener Medicinische Wochenschrift,* May 25, 1897) concludes a study of this subject. In a case of chronic peritonitis salicylate of sodium in both small and large doses lessened diuresis, the specific gravity of the urine being increased. With pure caffeine there was constantly observed a markedly increased diuresis, but with caffeine sodium salicylate (diuretin) the opposite effect was seen, the caffeine diuresis being suppressed by the salicylate. Caffeine produced its most marked effect after a course of small doses of salicylates. The use of caffeine alone made tapping of the ascites unnecessary, owing to the absorption of all the edema, which, on the other hand, was increased by the use of salicylates. The author shows by experiments on animals how the salicylates can abolish the diuresis produced by caffeine. Thus it is undesirable to use the combination of caffeine and salicylates where a diuretic effect is aimed at. In one case where tapping had been done some ninety times, the use of caffeine made any further tapping unnecessary. The author has used caffeine with digitalis, and has found the diuretic effect very marked. It is desirable to use the insoluble caffeine in preference to the soluble combinations. The author would recommend the use of caffeine, with or without digitalis, in all cases of venous engorgement with intact kidneys, in order to remove the edema by diuresis.—

The Active Principle of Castor Oil.—Many years ago Buchheim stated that ricinoleic acid is the purgative principle in castor oil, while

other observers maintain that the true active principle is a small quantity of a body derived from the seeds and held in solution in the oil. The question possesses considerable practical interest, because, if the former view be correct, we cannot hope to diminish the necessary dose; whereas, if the latter view be the correct one, and we were able to obtain the active principle in a state of purity, a very small dose of a probably tasteless substance would suffice to produce purgation. In 1890 Meyer strove to show (*Arch. fur Exper. Path. und Pharmakol.*, Leipsiz, bd. xxviii.) that ricinoleic acid and its salts were as active as castor oil, but there is always a suspicion that his preparations contained a small amount of the hypothetical active principle, and that their activity was due to this. He has again returned to the subject (*Arch. fur Exper. Path. und Pharmakol.*, Leipsiz, 1897, bd. xxxviii.), and, after showing that castor oil does not lose its activity by being heated to 300° C., or by treatment with dry hydrochloric acid, by boiling with caustic potash, or by other methods calculated to destroy any known active principle, he comes to the conclusion that ricinoleic acid is the only active substance present in the oil, and that it develops its specific action in the intestine by being saponified, and thereby rendered soluble. Ricinoleic acid has, however, no specially irritating properties, and it is difficult to explain its action as a purgative.

The Nitric Acid Test in the Examination of the Urine.—In conformity with the instructions usually given in text-books on urinary analysis, the nitric acid test for albumin is generally employed in the following manner: A certain amount of urine is placed in a test-tube, and nitric acid allowed to trickle down the sides of the tube, so as to form a distinct layer beneath the urine. In the presence of albumin a cloudy ring will be seen to form at the zone of contact of the two fluids. If it is only desired to test a given urine for albumin, no objection can be made to this procedure. The amount of general information, however, which can thus be obtained is rather limited, and a great deal more can be learned from a specimen if a conical glass of about two-ounce capacity be used in place of the test-tube. This modification is quite generally accepted in the hospitals of France, and many of Germany, and undoubtedly deserves the attention of American physicians.

The glass is filled to about one-half of its capacity with the urine to be examined, when nitric acid is carefully added from the side, or through a pipette carried to the bottom of the vessel, so as to form a layer of about one-half to three-quarters of an inch in depth beneath the urine.

Under normal conditions a brick-red to a rose-colored band, referable to the presence of normal urinary pigments, is then observed at the zone of contact, while the urine itself remains perfectly clear. If albumin be-

present, however, a more or less pronounced cloudy ring will be seen immediately above, and merging into, the colored ring. Its extent and intensity vary with the quality of albumin present, and it is possible with a little experience to form a fairly accurate idea of the total amount. To this end the depth of the albuminous ring should be accurately measured and the amount of albumin determined separately with an Esbach albuminometer. Bearing in mind the extent of the ring and the amount ascertained, it is possible, after a few experiments, to make an off-hand estimation from the qualitative examination alone. The same amount of the reagent and of the urine should, of course, always be employed, and it is convenient to mark the conical glasses accordingly. When it is desired to gain an insight into the amount of albumin eliminated in the twenty-four hours of the day, all the urine voided during that time should be carefully collected, and a specimen taken from this collected amount for examination. Decomposition may be guarded against by placing in the receptacle about one tablespoonful of chloroform.

The cloud at the zone of contact may be due to serum albumin, serum globulin, albumoses, or a mixture of these bodies. As serum globulin is always present when serum albumin is found, and as a poor globulinuria has not thus far been observed, its signficance is the same as that of serum albumin. If we wish to ascertain whether or not the precipitate contains albumoses, a small amount is removed with a pipette and heated over a spirit lamp or a Bunsen burner. Should albumoses only be present, the cloudiness disappears, and the liquid in the presence of nitric acid turns a deep yellow color. Upon cooling, however, the precipitate reappears. In the presence of a mixture of serum albumin, serum globulin and albumoses, only a partial solution occurs, and the yellow color is not so marked.

A pure albumosuria is of special interest in so far as its existence should lead the physician to anticipitate the appearance of serum albumin. Albumosuria may also alternate with true albuminuria.

A very important feature of this test, furthermore, is the fact that it furnishes an insight into the amount of uric acid eliminated. In order to obtain results of value, however, it is necessary always to work with specimens of urine taken from the collected amount of twenty-four hours. If uric acid be present in excess, a distinct wafer-like band, resembling albumin in its general appearance, will be observed in the clear urine *above* the zone of contact of the nitric acid and the urine. Should albumin be present at the same time it will be noticed that this band is separate from the albuminous ring by an intermediary zone of perfectly clear urine. If this point be remembered confusion will never arise, and it will not be necessary to study the effect of heat upon the individual precipitates in

order to ascertain their true nature. If the uric acid ring does not appear after from five to ten minutes, it may be assumed that the substance is not present in increased amount, and that the quality in all probability is even less than normal. As a general rule, the band appears almost at once after the addition of the nitric acid, if an excessive elimination of uric acid has taken place, and from the rapidity with which it appears and the depth of the ring an idea may be formed of the amount present, if the method has been carefully compared with one of the usual quantitative methods.

Occasionally, though rarely in the writer's experience, amounts of uric acid are encountered in the urine which are truly enormous, and almost immediately after the addition of the nitric acid a band of uric acid appears which almost fills the entire bulk of urine, and even extends to the nitric acid. Upon careful examination, however, it may be seen that the extension of the precipitate takes place from above downward, and not from below upward, as in the case of albumin. Should both be present in very large amounts at the same time, the decision, whether we are dealing with uric acid, or albumin, or both, may at first appear extremely difficult. The nitric acid should then be added through a pipette, and not allowed to flow along the walls of the vessel. Two bands can then always be made out for a few seconds at least, the one at the zone of contact, the other separated from this by an intermediary zone of practically clear urine.

If an increase in the amount of uric acid is observed, it should be ascertained whether this increase is only relative or absolute. It will be readily understood that the diagnosis of an absolute increase is only justifiable if the amount of urine is not subnormal. The increase, so frequently observed in febrile urines, is usually of a relative character, the total amount of urine being subnormal. A sharp line of distinction should, furthermore, be drawn between increased production and increased elimination. It is thus not justifiable to exclude the diagnosis "uric acid diathesis" when normal or even subnormal amounts are obtained. A temporary retention is frequently observed.

An excess of urea is likewise quite readily discovered with the nitric acid test. Every physician probably who has occasion to examine many urines has observed the appearance of glistening crystals after the addition of the nitric acid if the specimen has been allowed to stand for a few minutes. These crystals are urea nitrate, and when formed in this manner always indicate the presence of at least twenty-five grammes of urea for every 1,000 c. c. of urine. When occurring in dense masses fifty grammes or more are being eliminated.

In conclusion, the nitric acid test, when applied as described, indicates

the presence or absence of bile pigments, as well as the presence of increased amounts of indican. A dark blue or violet ring is only found when indican is eliminated in large amounts, and as this, generally speaking, only occurs when an increased degree of intestinal putrefaction exists, we have thus a fairly accurate index by which to measure the latter.—Dr. Chas. E. Simon, in *National Med. Review*.

The Free Granules and Immunity.—Theories of immunity continue to grow apace. The rapid changes new investigations enforce in accepted views make it difficult for the general observer to appreciate the exact situation, but he must feel that the truth of the matter is being slowly but surely revealed.

A short time ago certain "small, generally round, colorless granules," readily distinguishable from blood-plates, were described by Müller, an assistant in Nothnagel's clinic in Vienna. In the last number of the *Johns Hopkins Hospital Bulletin,* Stokes and Wegerath, of the bacteriological laboratory of the Baltimore Health Department, describe an investigation of these granules, and advance a theory of their relation to immunity.

In all the specimens of blood which he examined Müller is said to have discovered a varying number of these small, refractive, spherical bodies of inderterminate origin and composition. From whence do these granules originate? It was noted that they resembled the granules of the eosinophilic and neutrophilic leucocytes. At times the granular leucocytes become actively ameboid, and the granules within the neutrophile exhibited characteristic activity. When this occurred the free granules increased in the plasma. This furnished what detectives would call a clue.

Do these free granules come from the leucocyte, and can they be seen to do so? Stokes and Wegerath think they do, and that they have observed this phenomenon. They record a series of observations and experiments, all of which strengthen them in the conclusion that the granules of the eosinophile and neutrophile are present as free granules in the plasma and serum.

What is the bearing of these bodies on the problems of immunity and natural resistance? The protective function of the leucocyte is a historic attribute. The doctrine of phagocytosis, while not comprising all the truth, contains an important part of it. This theory is summarized by Metchnikoff as follows: "We have the right to maintain that in the property of its ameboid cells to include and to destroy micro-organisms the animal body possesses a formidable means of resistance and defense against infectious agents." Buchner modified this theory by finding blood-serum bactericidal, though he admitted that the leucocyte probably furnished the substance which gave it this quality. Since then Bordet, Bail, Shattenfroh, Dzier-

gowski and other investigators have determined beyond all dispute the bactericidal power of the leucocyte.

The experiments by Stokes and Wegerath go to show that filtered serum is deprived of its bactericidal qualities, and that the presence of a sediment consisting of granules, leucocytes and red corpuscles restores to the serum its germicidal power.

It being therefore demonstrated that the leucocytes not only contain a bactericidal substance, but that under certain circumstances they can impart it to the surrounding medium, experimental proof is sought to show that the germicidal substance and the material that leaves the leucocyte are identical.

This proof is, of course, very difficult to obtain. These investigators are, however, satisfied that in the observed separation of these granules from the leucocyte this is confirmed.

The bearing of these facts upon immunity is important, and induces the writers to advance the following theory: "The bactericidal power of the leucocyte of the blood, and of the serum of man and many animals, is due to the presence of specific granules, especially the eosinophilic and neutrophilic. When called upon to resist the action of invading bacteria, the granular leucocytes can give up their granules to the surrounding fluids or tissues."

To the general practitioner the bearing of such conclusions as these is of high significance. They emphasize the great importance of hematology as a branch of clinical diagnosis. Already the facts of leucocytosis have to be considered in estimating the prognosis of many diseases. In the near future the microscope may give us not only valuable means of measuring the *vis retentiae* of the patient, but may enable us also to make confident predictions as to his immunity.—*Med. Age.*

CREALBIN.

A combination of creolin and albumin, resembling ichthalbin and tannalbin, has been introduced by Risselada (*Pharm. Ztg.*, Vol. XLII., p. 846) under the name of "Crealbin." It is said to be obtained by precipitating with diluted hydrochloric acid a mixture of 10 parts of a 10-per-cent. solution of dried albumin with 1 part of creolin mixed with 10 parts of water. The precipitate is dried on a water-bath, powdered, and subjected to further heat in a drying-closet at a temperature of from 115 degrees to 120 degrees C. for three hours. One hundred parts of albumin yield about 100 parts of crealbin.

The new preparation is intended for internal administration, but reports regarding its use are still wanting.

Alumni, College and Class Notes.

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Class '95,	G. F. MANVILLE, 310 W. 113th St., N. Y.
Class '96,	Chas. G. H. GERKEN, Phar. D., 2655 Second St., Brooklyn.
Class '97,	C. W. MEINECKE, Ph. G., 578 Fifth Ave., N. Y.
Class '98,	L. EICKWORT, Jr., 115 West 68th St., N. Y.
Class '99,	CLARA F. EHLIN, 115 West 68th St., N. Y.
Legal Notes,	H. A. HEROLD, 206 B'way, N. Y.
Post Graduate Class of '96,	HARRY B. FERGUSON, Phar. D.
N. Y. C. P. C. C.	N. S. KIRK, Ph. G., 450 Third Ave., N. Y

'93 NOTES.

The ever-verdant Sammy is enjoying a great deal of newspaper notoriety since he has come over to Long Island. First, he figured as the kidnapper in an affair, and now as the kidnapped. Too bad he got away from you, old man, but a pirate's life is not what it's cracked up to be.

Lischke, I hear, is recommending everybody the Talcum Powder he won in that bicycle event at the Outing.

The ball was a success, despite our inability to attend. When we found we could not go, we had grave fear as to its success from a social and financial point; but so are the mighty forgotten!

We found our Billy Hoburg mercilessly quizzing the Juniors, as if, though, he had never been a student himself. But the ever-dignified Billee never bent an inch.

EUGENE F. LOHR.

'94 NOTES.

Alumni Day, April 27th; Commencement, April 28th. Come over and "enjoy youselves."

At the college election in March Herold received some complimentary votes for member of the Board of Trustees; too few, however, to elect him.

Stoerzer drops in to see us occasionally; he is still dispensing (?) on Third avenue, and, as usual, always comes around well loaded; that is, with yarns.

Conrad Grogan, whose fine stare has been the subject of cuts in pharmaceutical journals of late, has had considerable litigation with the manufacturers of a well-known preparation, owing to his asserted statements of it containing morphine. Conrad, I learn from good authority, is engaged.

'98 NOTES

Our apologies are due the class for the lack of '98 notes last issue. The official stenographer was so busily engaged preparing for the board examination that he could find no time in which to make up the required notes.

The final election of Class Valedictorian took place Wednesday, January 26th. The vote was: Mr. Richards, 80; Mr. Eickwort, 66.

The City Board of Pharmacy held its regular examination on Monday, February 21st, at the college building. From the large number of the boys who passed a successful examination, we would infer, not that the examination was a "cinch," but that the amount of knowledge possessed by a man of ordinary intelligence, after studying at the N. Y. C. P. for a year and a half, is far above the average.

An invitation had been extended to the class by the "Maltine" Company

and by Mr. Fraser, of tablet-triturate fame, to visit their works in Brooklyn on the afternoon of February 21st. Whether the name "Maltine" carried with it a suggestion of malt liquor or not, we know not, but certainly there was an unusually large crowd present.

The reaction from the morning's hard work was evident, and the boys were in the best of moods. The young lady employees at both establishments seemed unusually attractive, and, while we do not know whether they were informed of our visit or not, it must be admitted that they upheld the reputation of Brooklyn as the "city of pretty girls." A light repast of sandwiches, cake, cream and coffee was served at the Maltine works. The method of preparing tablets seemed particularly interesting to the boys. One of our bright stars showed his lack of knowledge by asking a young lady stenographer who was playing a waltz on the keys "where the tablets came out." Finally, at dusk, after having successfully eluded the dangerous trolley cars and the wiles of the pretty girls, we arrived safely in New York, pronouncing the trip a decided success.

Our friend "Pepo" of Boonville is working very hard of late. We wish him all success.

The class dinner will be held Friday evening, April 22d. Remember, boys, one pack of cigarettes a day less from now till then pays for the dinner. It's Lent now, and you ought to deny yourselves some little pleasures, anyway. We would suggest that the young ladies eat four pounds less of Huyler's. The feast will be the event of the season, and we all ought to be present at this last reunion before our final parting.

The "Methyl Quartette" remains as popular as ever. Their field of conquests has been extended beyond the college walls, and of late they have been singing before appreciative audiences in the boroughs of Brooklyn and Manhattan.

Athletics are booming once more. The ball team has been practicing conscientiously of late, and they expect to be college champions after their game with '99 next Saturday.

The preparations for Commencement are progressing rapidly, and Treasurer Alpers is fairly snowed in under the vast number of $10 bills coming his way.

Have you ordered a class photograph yet? Do, or you'll regret it. Judging by the proofs, the picture will be fully up to the standard of beauty, and in numbers will far exceed that of any former class.

The S. C. hold sessions daily in the back row of the lecture room—President Alpers, Vice-President Shaeffer, Secretary and Treasurer Wells. This club is very exclusive, and does not take in members indiscriminately.

Holcomb does not expect to get any rebate on his breakage fee.

Our president is burning the midnight oil. He must have his eye on some prizes.

The bicycle club ought to get a number of recruits from the present class.

Captain Gies expects to have a thoroughly efficient military company composed of '98 boys by the time war is declared.

Our members from up the State who are in town temporarily are becoming howling swells. They promenade Broadway nearly every afternoon.

'99 NOTES.

Mr. Kessler of Section I. is about to make his first appearance at the college quizz class in the comedy sketch entitled "No Prompting Allowed"; Prof. ———, leading man.

Our *Phenomal* Quizz Club is still holding its meetings on a full *stomach*. Some curious answers may be heard in the Quizz after they have partaken of some of Schuyler's pasteries.

Many of the boys stay in New York City through the summer vacation. A few, however (among them Hamlen, Biven, Gould, Dichey, White, Wittie, Davidson, the Brooklyn and Jersey City boys), will spend the season at their homes.

Clark has not yet recovered from a severe attack of scarlet fever.

It may be by the law of compensation, but it is noticeable that the boys who can't excel in correct answers get there when it comes to making a noise "just the same."

According to one student, the litre is the unit of United States linear measure and the metre of English. (Oh, land! you don't say so.)

According to one "witty" gentleman, precipitation is when two liquids are combined, and they turn into a solid.

Still another gentleman insists that water is the most powerful stimulant known to mankind.

Professor.—Which is heavier, a gramme of water or a gramme of H_2SO_4?

Student.—A gramme of H_2SO_4. (Laughter.)

Student.—Oh, I meant a gramme by weight.

Every college has its songs. Why should not the N. Y. C. P.? The following verses set to "Marching through Georgia" are submitted, not on account of their literary merit, but in the hope that they may stimulate some of those who are more talented to write something worthy the name of "N. Y. C. P. College Song":

I.

A band of loyal pharmacists,
We sing with voices strong;
Every voice delights to sing
Our Alma Mater song.
Then we give the college yell,
To show where we belong,
Proud of our city and our college.

CHORUS.

Hurrah! Hurrah! for old N. Y. C. P.
While life remains, may we be true to thee:
And, though no fame we bring to thy name,
From stain we'll keep it free,
Loyal for aye to Alma Mater.

II.

Our college days too quickly pass,
While lectures we attend,
And make emulsions, liniments,
And mixtures without end;
Pills which, though looking innocent,
We would not give a friend,
Capsules and powders without number.

III.

Before we part, with cheerful heart,
We'll drink each other's health.
And wish each merry student here
Both happiness and wealth,
And freedom from all enemies
That threaten him by stealth.
But not a trace of care or sadness.

By the way, Goldwater of Section III., not the gentleman mentioned last week, is the one who deserves the credit of procuring the Ruhnakorff coil, by the aid of which we were treated to an exhibition of "X rays." It was loaned by his brother.
C. F. EHLIN.

COLLEGE NOTES.

The annual election has taken place, and, there being no contest, the ticket, as proposed by the Nominating Committee, went through.

The college year is nearing its close, the examinations begin April 12th. Commencement will be held, April 28th, at Carnegie Music Hall, Fifty-seventh street and Third avenue. The Seventh Regiment Band will again delight the audience with their superb music. Ex-President Samuel W. Fairchild has been appointed chairman of the Commencement Committee in place of our most honored and mourned friend, Hermon W. Atwood. Five new members were elected at the last meeting of the Board of Trustees, and eight names were proposed for membership; but we want still more of them, especially Alumni. Hurry up, boys; join in the good work; it don't cost you much. Send your name in to the undersigned, care of the college. Five dollars is the amount of the annual dues.
E. R. B.

The annual election held on March 14th brought out a large delegation from both the Alumni Association and German Apothecaries' Society, the following ticket, prepared by the Nominating Committee, being elected:

President—Edward Kemp.

First Vice-President—Charles F. Chandler.

Second Vice-President—

Third Vice-President—

Treasurer—Clarence O. Bigelow.

Secretary—Thomas F. Main.

Assistant Secretary—O. J. Griffin.

Trustees (three years)—O. Amend, A. Henning.

"The Factotum" indulged in a drink at the college meeting, but as it was only water his back was turned to the audience. These are, indeed, hard times!

ALUMNI DAY

The customary reception will again be extended to the Junior Class on Wednesday afternoon, April 27th, when the prizes of a torsion balance, U. S. Dispensatory and U. S. Pharmacopea (sheep) will be awarded to the three successful candidates. An interesting programme, consisting of vocal and instrumental music, recitations, comical sketches, etc., has been arranged for, the election of alumni officers for the ensuing year following. Association and college members, students and their friends are cordially invited to attend.

VOL. V. MAY, 1898. NO. 5.

The Journal of Pharmacology

PUBLISHED BY THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHARMACY OF THE CITY OF NEW YORK

CONTENTS.

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The
Journal of Pharmacology,

Devoted to the Advances Made in Materia Medica in its Branches. Pharmacy, Pharmacognosy, Chemistry, Botany, Pharmaco-Dynamics, Therapeutics and Toxicology.

Published by the Alumni Association of the College of Pharmacy of the City of New York.

VOL. V. NEW YORK, MAY, 1898. No. 5.

MEDICINE OF THE CHINESE.

BY FRANKLIN STAPLES, M. D.

Whatever has pertained to the civilization of the Chinese has been characterized by a fixedness not known in the history of any other people. Dr. Baas aptly likens the Mongolians, in this their dominant character, to what exists in the organic world, which, once crystalized, remains forever unchanged, with no inherent tendency either to grow or decay; while the civilization of other peoples, those of Indo-Germanic origin, he compares to what is in the organic kingdom, whose existence involves the certainty of changes incident to life. "With the latter, civilizations have sprung up, developed, bloomed and decayed, and finally perished, sometimes with the peoples themselves." The possibility of such permanence in the habits and in what pertains to the lives of the Chinese is accounted for, in part at least, by the fact that it has ever been the policy of the government of this vast empire to keep itself intellectually and physically free from intermixing with foreign races.

The material constituting the ancient history of different peoples has been transmitted to modern times in different ways. Evidences of the character and cultivation of the ancient Egyptians appear on remaining monuments in ancient ruins and tombs; the learning of the Greeks has come to us in the Greek literature which has been preserved. Neither monuments nor historical literature are found in China to furnish history much older than the present era. Unreliable and exaggerated traditions are found, which attribute certain scientific works to persons living in the remote past. As illustrative of these, it was given that the Emperor Chinnung (B. C. 2699), who was the reputed author of a work on medicinal

(From Northwestern Lancet.)

herbs, had discovered in one day no less than seventy different species of poisonous plants, and at the same time others that were antidotes for the poisons of the first seventy. What belonged to ancient Sin, Chin, Sinae, China or Seres, or to mediaeval China, has come down in living generations of many centuries, and exists with little change of form and substance among the Chinese of modern times. In quite recent times some innovations have been made by foreigners, and natives educated abroad have carried the results of their learning to home institutions; but, for the most part, the present tense may be used in describing customs which, so far as known, have always existed.

Something is known of a Chinese literature, which is extensive, and is believed by some to have had its beginning as early as the sixth century. In the ninth century the Chinese invented printing by means of engraved blocks. With these, used as stamps, fine printing was done on silk and other textile material and on paper.[1] Movable type made of clay are mentioned as used by the Chinese from the middle of the eleventh century. In the British Museum is a Corean book printed with movable type in 1337. The Coreans are said to have printed by means of copper type at the beginning of the fifteenth century.

EARLY MEDICAL WORKS AND AUTHORS.

The name Hwang-te appears as that of a Chinese emperor (B. C. 2637), who was given as the author of a treatise on medicine. There is much uncertainty concerning the time of the origin of this work, and its authorship has been doubted, in the belief that it is probably a forgery of about the beginning of the present era.[2] This medical work, which is entitled "Nuy-kin" or "Neiszin," is still extant, and the fact that it still serves as a medical guide is noticed as evidence of the unchangeableness and lack of progress in medicine, as in all things pertaining to human life and affairs in China.

Before the time of Hwang-te appears the mythical character, Chin-Nung, who is given as the good emperor, who invented agriculture. The tradition is that he tested all the drugs upon his own person, before allowing them to be used upon others, and that he succeeded in prolonging his own life and the lives of his people by introducing healthful articles of food.

Che-Hwang-te (B. C. 213), who was a powerful emperor, the builder of the great Chinese wall, is noted as the burner of books. This he did in opposition to the schoolmen of the nation, who opposed him in his administration of the government. But the writings of Hwang-te, and perhaps others, escaped destruction at this time.

[1]James Freeman Clark, in "Confucius and the Chinese."
[2]Baas' History of Medicine. Henderson, p. 51.

We have some account of the following as among early Chinese works and authors: Nang-King wrote on medicine in the second century. Wang-Shu in the third century wrote ten large volumes on the pulse. Nothing farther is noted until A. D. 1247, when Sung-Tse is accredited with a work on forensic medicine. This work is said to contain valuable observations on the symptoms of drowning, and the fame of its mysterious wisdom is so great that the very sight of it is said to be enough to make poisoners, etc., confess their crimes. About A. D. 1500 appeared the Chinese cyclopaedia of medicine, edited by Prince Chu-Su, of the Ming dynasty, and comprising 160 volumes, 770 treatises and 22,000 prescriptions. It was mainly from this that a committee of 800 physicians, under the presidency of Li-Shi-Chin, compiled in 1596 the famous Pun-Tsaou-Kang-mu, or Chinese materia medica, in fifty-two volumes, describing 1,890 drugs. Medical literature then degenerated for a time into shorter monographs, of which only that on acupuncture (seven volumes with copious illustrations) may be noticed. In 1740 appeared a work of ninety volumes on the pulse, with a short notice of the circulation of air in the body and the treatment of fractures; and about the same time the Pentasco, or chief Chinese work on botany, was published (Withington).

A LACK OF FOUNDATION.

It has been observed that, while the history of medicine since the time of Hippocrates shows that among the people of the advancing nations of the world the effort has been to establish the science of medicine upon the real foundation of anatomy and physiology, yet among the Chinese and other kindred people such a basis for the science of medicine has been mostly unknown. With no foundation for medicine other than the demon theory of disease, which has obtained among the Mongolians to the present time, no development of science has been possible. As said by Dunglison, "A variety of insurmountable obstacles have opposed themselves to the Chinese ever attaining the same degree of civilization that the European arrives at with so much comparative facility. The first is situated in his organization, whether natural or acquired by education: the second, in the frightful despotism which hangs over his head; the third, in the foolish vanity which has induced him to believe that China is the country of wisdom and the sciences."[3]

The religion of a people never fails to have a great part in the formation of its civilization and in affecting its advancement in science and art. Kung-foo-tseu (Latin, Confucius), born in China (B. C. 551), became a

[3]History of Medicine, Dunglison, p. 71.

great philosopher. He was a man of great virtue, and gained an influence over the whole Chinese people. The great endeavor of Confucius was to remedy the political and moral evils of his time. He had many disciples, who recorded the sayings and maxims of their master, and the sacred books of the Chinese have preserved these precepts for the benefit of the people through all the centuries to the present time. He was successful in causing reforms, and no name stands above that of Confucius in the nation's annals. Confucianism has been called the chief religion of the Chinese. It was more an education in what pertained to material life, and in many things tended to elevate the people; but the great reformer hoped for more than has been realized in the progress of his people. Their religion has been an agnosticism, and an adherence to the worship of ancestors. Shamanism and Taoism, terms applied to Chinese religion, are but other names for sorcery. Taoism is a religion of great antiquity. It involves an implicit faith in sorcery. The Chinese have degenerated Buddhism, the religion originally an Indian product, into these religions, which have continued to the present time.[4] In the mythology of the Chinese, as in that of ancient Egypt and Greece, distinguished physicians are made to appear as deities; but in China such a distinction seems to be allowed principally to emperors and high officials in the government. The Emperor Fuh-Hi is mentioned as the first physician and the deity of doctors. Kuang Tai Uong is the god of surgery. Ling Na is the goddess of midwifery and children. If children are sick, Taoist priests are employed in her temples to perform a ceremony for their cure. Ioh Nong Cha Su is the god of medicine and drugs. Druggists rather than physicians are his worshippers.[5]

The veneration for ancestors and the value put upon the body after death lead the Chinese to take great pains in the care and burial of their dead. The motive here, and the object in view which prompts this care and regard for the dead, differs from that which in ancient Egypt caused the careful preservation of the dead body. The custom there resulted mainly from the belief that the same body was to be the future tenement of the soul. The time of mourning for a parent in China is three years, and for other relations in proportion. No expense is spared "in rendering the dead comfortable." "Every good Chinaman regularly burns incense before the tablet to his father's memory. There is in every respectable house the hall of ancestors, where the pedigree of the family, with the grandsire at the head, is inscribed, and here their descendants repair in spring to perform their devotions: then they go to the graves and present rich of-

[4]Berdoe, from Prof. Teile, in art., "Religions," Enc. Brit.

[5]Karl F. A. Gutslaff, from "China Opened."

ferings of all kinds of victuals, candies, flowers and incense; of which, however, they afterward scruple not to make use themselves. The sums expended are enormous," but every one considers it his sacred duty, and no one murmurs. At stated times, when the body has mouldered into dust, they go and wash the bones, and place them in an urn, which is generally preserved above ground.[6]

The element of superstition which appears in most things pertaining to Chinese life is illustrated by the following: The belief prevails that the infliction of demons on sufferers is by act of the gods, as punishment for sins committed as well in a supposed previous existence as in the present life. The following case, among others, is given by Berdoe: Archdeacon Grey found a grievously afflicted monk in a monastery in the White Cloud Mountain. He desired to take him to the Canton Medical Missionary Hospital; but the abbot took him aside and begged him not to do so, as the sufferer had doubtless in a former state of existence been guilty of some heinous crime, for which the gods were then making him pay the well-merited penalty.[7]

WITHOUT GOVERNMENT CONTROL.

Concerning the governmental control, or rather the want of it, in the practice of medicine in China, it is observed that the ancient and unlimited liberty of engaging in this business has not only rendered any educational standard for admission impossible, but has made the number of practitioners enormous. The following, however, as given by a German writer, while it suggests governmental interference, has a more important bearing upon what is the character of the profession. "The doctors," so runs the edict of 1882, "have the bad habit of not visiting their patients before one o'clock in the afternoon. Some of them even smoke opium and drink tea until late in the evening. These are abuses which the government will under no circumstances permit. Doctors must visit their patients at all times; if necessary, they must visit them several times a day. They must think more about them and less about their fees. The public and all officials are notified that a physician who does not come at once when called can claim only half of his fees and expenses. If you physicians put off your calls, you manifest your godlessness, and sin against yourselves."

THE OUTLOOK.

Had it not been for the exclusiveness of the Chinese from all other peoples in the long past, not only more might have been known concern-

6 Berdoe, from "Doolittle's Social Life of the Chinese."

7 From "Doctoring in China," National Review," May, 1889.

ing what science and art may have existed among them at any time, but it is possible that more might have been added to the credit side of their account. It is known that the Chinese have long had some knowledge of the circulation of the blood, although their anatomy of the circulation is very imperfect. It is said that the Chinese inoculated for small pox in the ninth century; yet it is known that they have goddesses of small pox and measles that are extremely popular divinities. "Should it thunder after the pustules of small pox have appeared, a drum is beaten to prevent them breaking. On the fourteenth day ceremonies are performed before the goddess, to induce her to cause the pustules to dry up."[8]

Acupuncture is largely practiced, and this is supplemented by the use of the hot iron. Many varieties of the pulse are given, each having its own significance. The wily physician will impress his patient by sitting an hour with his fingers moving in a rythmic way over the region of the pulsating artery, and then pretend to make his diagnosis and prognosis from what he has discovered. But this practice is as good and worthy as some procedures accepted and allowed in the light of English and American civilization of the present day, where persons who ought to be better educated have been known to send a lock of hair to a distant quack, or to submit to the laying-on of hands and other so-called "faith-cure" performances.

A recent writer (Dr. Park) sums up concerning Chinese medicine and surgery as follows: "It is related that one of the ancient Chinese emperors directed the dead bodies of criminals to be opened; but this is questionable, since they have the most profound ignorance of rudimentary anatomy, and glaring errors abound in their system. Being thus replete with errors, and possessing no anatomical knowledge, their surgery was of the most barbarous type. No one dared attempt a bloody operation; the reduction of hernia was unknown; a cataract was regarded as beyond their resources, and even venesection was never practiced. On the other hand, they employed cups, and acupuncture, fomentations, plasters of all kinds, lotions and baths. The moxa, or red-hot button, was in constant use, and they had their magnetizers, who appear to have been convulsionists. For a long time there existed at Pekin an Imperial School of Medicine; but now there is no such organization, nor any regulation for the privilege of practicing medicine or surgery since 1792. At least until lately the country and the cities were infested with quacks, who dealt out poison and death with impunity. They practiced most murderous methods in the place of the principles of midwifery. Only since the civilized missionaries have penetrated their country has there been any improvement in this condition of affairs."

[8]Berdoe, from "Doolittle's Social Life of the Chinese."

ARTHUR CLAYTON SEARLES.
President of the Alumni Association.

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OF THE

ALUMNI ASSOCIATION.

For 1897-'98.

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Program.

PART I.

1. PIANO SOLO..Selected

MR. M. MANDLEBAUM.

2. SELECTION ....

METHYL QUARTETTE.

3. WELCOME TO CLASS OF '98..........................

CHAIRMAN ALUMNI DAY COMMITTEE.

4. AVE MARIA..

ALOYSIUS LEO O'KEEFE.

5. SOPRANO SOLO.....................................Selected

MISS JENNIE SPENCE.

6. MARCH CHATEAUGAY—Mandolin and Guitar..........Shears

MESSRS. SHEARS AND POTTER.

7. HUMOROUS ....Selected

J. S. BURDETT.

Through the courtesy of the Lowe Bros. and Co., Crystal H2O table water will be provided for our guests.

WM. A. HOBURG Jr.
Secretary of the Alumni Association.

THE PHARMACY OF ADRIAN PARADIS, 191 FULTON, COR. NASSAU ST.
Designed and made by the New York Store Fixture Co., 152 to 156 Bank Street, New York.

This company is well equipped with machinery, experience, technical and artistic knowledge for the manufacture of druggists' fixtures. They have been before the public seventeen years and have in that time originated many features of value, which can only be had in perfect form from them. Their fall cases for use in stores that are too narrow to admit of counters on both sides, their system of sliding doors and the drawer work cannot be excelled.

This company is constantly being con-sulted on the subject of fixtures by th leading druggists in this country and some extent Europe, and frequently g suggestions of value from clients, th are incorporated into the general wor Thus the youngest druggist in coming them gets the benefit of years of study some of the most astute men in this pr fession.

PART II.

1. SELECTION . . . .

METHYL QUARTETTE.

2. READING OF THE JUNIOR ROLL OF HONOR. . . . .

BY GEO. C. DIEKMAN, M. D., Ph. G.

3. LEDGERMAIN . . . .

ERNEST ARNOLD.

4. PRESENTATION OF ALUMNI PRIZES. . . . .

BY ARTHUR C. SEARLES, PRESIDENT ALUMNI ASSOCIATION.

1st Prize—Springer Torsion Balance.
2d Prize—U. S. Dispensatory.
3d Prize—U. S. Pharmacopœia.

5. THE BRIAR ROSE. . . . .

MISS H. SJOBERG.

6. DUFFY'S BLUNDERS. . . . .

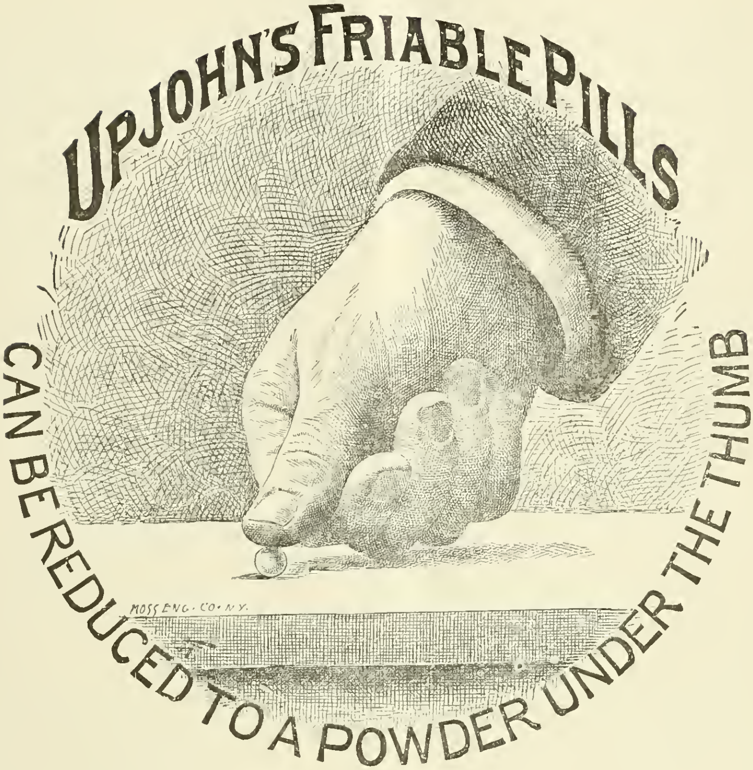
C. W. POTTER.

7. READING . . . .

MR. J. L. DRISLANE.

The Committee on Prizes are indebted to The Springer Torsion Balance Co. for their many courtesies.

A. HENNING.
Member of the Executive Board of the Association.



ABSTRACTS.

Disinfection of the Hands.—Dr. Wier, in an interesting paper published in the *N. Y. Med. Record,* gives a new method of disinfecting the hands. From the results of the experiments, and he has tested it quite thoroughly, it appears to possess the advantages of the best methods now in use as regards efficiency of sterilization, without their serious disadvantages of injury to the hands. The method consists of the usual preliminary scrubbing with soap and water; then a handful of chloride of lime is moistened with water, and a crystal of carbonate of soda is added. This mixture is rubbed over the hands and arms, forming a creamy paste. When a sensation of coolness is felt in the hands, which occurs after the paste has been on a few minutes, the hands are washed in sterile water. Scrapings from the nails after this procedure yielded cultures in less than 5 per cent. of the experiments.

Trikresol as an Antiseptic for Collyria—Dr. E. A. de Schweinitz, Biochemic Laboratory, Professor of Chemistry at the Columbian Medical College, Washington, D. C., of the Department of Agriculture, has experimented with trikresol as an agent to prevent the contamination of collyria with harmful bacteria *(Therapeutic Gazette,* July 16, 1895). Chemical sterilization of such solutions has not been satisfactory in the past, owing to the strength of carbolic acid, corrosive sublimate or mercury cyanide that must be used to insure disinfection. First he found that a 1-to-1,000 solution of trikresol in ordinary Potomac River water completely sterilized it. The same solution dropped into a rabbit's eye produced not the slightest irritation; nor did the injection of the same solution into the anterior chamber cause more hyperaemia of the blood vessels in the ciliary region just above the point of injection than a simple puncture of the cornea would have done. Trikresol water, 1 to 1,000, dropped into the cul-de-sac of the human eye, did not cause the least burning or irritation.

Collyria of cocaine, atropine and eserine of the usual strength were then prepared, a 1-1,000 aqueous solution of trikresol being employed as the solvent. The bottles were then left uncorked and exposed in the closets and in the open air for days and weeks. They remained clear, and no cultures could be made from them. Some of them have stood this test for months.

Dr. Schweinitz recommends that a 1-1,000 aqueous trikresol solution be employed instead of water in making up collyria. Even a 1-500 solution caused no burning when dropped into his own eyes. In many cases the trikresol solution 1 to 500 could be used more advantageuosly than the 1 to 1,000. In addition to the usual solutions kept in the ordinary treatment case, there should also be a small vial of trikresol water for rinsing the pipettes after use. By this method he thinks that the fungus and bacterial growths often found in collyria might be prevented, as well as any eye complications resulting from the use of a contaminated solution. He concludes that as trikresol has been found to be such a good antiseptic, and to be fatal to the pyogenes aureus, it will doubtless be very useful in general ophthalmological practice.

Potassium Permanganate as an Antidote to Morphine.—Dr. Charles A. Holder, Assistant Demonstrator of Pharmacy in the Jefferson Medical College, writes to the *Therapeutic Gazette* for January, 1898, page 11, of his investigations on this subject. Fully accepting the evidence that when this is brought into contact with morphine in the stomach it at once neutralizes it by reduction, and having determined that in a test tube at least 2 grs. of the permanganate are required to reduce 1 gr. of morphine, he set

out to determine its efficacy as an antidote when subcutaneously injected. He first established the toxic dose for dogs at .6 to .7 gram of morphine for each kilo of body-weight, and then killed six dogs by using a dose of .75 gram. Five other dogs were then similarly treated with morphine sulphate, immediately followed by hypodermic injections of the permanganate. The effect of the morphine was found to be exactly the same as though no permanganate had been taken.

BOOK REVIEWS.

Drug Topics.—Published every two weeks by McKessen & Robbins.

This excellent little summary is bright and up to date. Our readers would do well to send in 50 cents to "Drug Topics," 95 Fulton Street, and get it for a year. There is much in it to liven up the weary hours.

Alumni, College and Class Notes.

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College Pharmacy, Wed., April 13th, 1898.

Meeting called to order by Pres. Kirk, 10.30 P. M.

Members present, N. S. Kirk, C. H. Bjorkwall, A. E. Melville, H. Sasse, L. G. B. Erb, T. Davies, C. S. Erb, Ambos.

Motion was made and carried that minutes of last meeting be dispensed with.

Pres. Kirk reported the action taken by the Alumni Association of the N. Y. C. P. giving the N. Y. C. P. P. P. entire charge of the athletic events at their annual outing.

Committee appointed by Pres. Kirk to take charge of the games at the annual outing of the Alumni Association of the N. Y. C. P. to be held on June 8th, 1898:—Ludwig G. B. Erb, chairman; C. H. Bjorkwall, J. S. Stage, Frank Pond, W. P. Gregorius.

Meeting adjourned after motion of C. H. Bjorkwall.

LUDWIG G. B. ERB, Sec. and Treas.

Pursuant to custom, the Outing will again be held in June, possibly the second or third Wednesday. Sergt. Davies, who is chairman of the Arrangements Committee, will report at the Alumni meeting, on April 13th, when the grounds and date will be selected. The committee are endeavoring to find a suitable location on the water which, in addition to the essential advantages, will possess a good track for the cycle events, which are to be held under the auspices of the N. Y. C. P. C. C.

OBITUARY.

Frederick H. Pamphilon, '85, died on March 29. He was born in Stafford, N. Y., in 1865, and for many years was the proprietor of a store on Fourth Ave., Brooklyn, where he also served as president of the Kings County Pharmaceutical Society for several years. His remains were taken to Stafford for burial.

'93 NOTES.

We received a letter from Bert. Schreiner in which he says, Plainfield still has the honor of counting him among her citizens.

Jos. Mayer is now a Phar.D., Brooklyn College of Pharmacy. What's the matter, Joe; is New York not good enough for you, or too good?

Lawrence J. Meighan has followed the example of the other members of the Triple Allinace (Shaaf, Jarchow and Meighan) and has put his neck into the yoke of matrimony. Our best wishes are extended to Mr. and Mrs. Lawrence J. Meighan.

The aforementioned alliance is getting over-balanced on one end, as Jarchow now weighs as much alone as the other two-thirds of the combine. Any one not knowing what a prosperous "deutscher Apotheker" looks like, will get the required idea by calling at 445 Second Ave.

Power has purchased a store in Plainfield, N. J. We are awaiting news of his marriage, as the two always seem to go together.

The term at the Baltimore Medical College being over, Jake Stage is again making us happy with his presence.

Another arrival from Baltimore is E. Lehmann, who has been studying at the Dental College there. Is it Baltimore's reputation for pretty girls that has attracted those two lady-killers there?

Send us news of yourselves and others of the class, boys, as my stock is running low, and the only way to keep up a presentable class column is for all of you to help me preserve the old '93 column. EUGENE F. LOHR.

'94 NOTES.

Special issue this month, commencement is yet a dream of the future, but I feel confident of having an opportunity of writing a lengthy list of names next month, so don't disappoint me, boys. If you haven't a ticket, why, come anyway, and we'll take care of you.

The Outing, you know, is to be held on Wednesday afternoon, June 8th. We have made arrangements to get the moon full that night, so that if he lights on us, we will be prepared for the glaring attack. By the way, bring your best girl with you, and perhaps we will congratulate you on your choice.

Dr. Leo Geisler is with Beley, who has Kress's old stand on Sixth Ave. and 52d St. Leo has done his share of Alumni work this season, having served on the Ball, Alumni Day, and other committees.

Mr. and Mrs. Ely paid us a visit on the 13th, inst., when Frank had an opportunity of exchanging reminiscences with the '94 boys who were present. We hope to see more of him in the future.

Louis G. Scharnikow will again go to the Catskills this summer. He leaves the city on June 15th to take a position in Smith's Pharmacy, at Pine Hill, N. Y., where he will remain until the middle of September, after which he may be found at the old stand (86th St. and Columbus Ave.)

Drs. J. Henry Wurthman and Henry Krender are progressing nicely at P. and S., where their course concludes in a few weeks. In the event of war, I understand that they will both enlist.

OUR TALENT—DO YOU RECOGNIZE THEM?

Tom Reid, the boss, gavel specialty, A. C. S.; Barnum, "cash up, you lose," C. S. E.; Walter Damrosch, famous choral leader, W. A. H.; Weber or Fields, German impersonators, R. G.; Lew Dockstader, Negro impersonator, N. S. K.; Daniel Webster, statesman and orator, H. A. H.; Bill Bryan, free silver champion, L. G. B. E.; Bill Nye, greatest joke(r) on earth, E. F. L.; Groner, C., an ideal papa, J. T.; Amos Rusie, champion pitcher, C. H. B.; Fitzimmons, champion pugilist, M. A. A.; Jimmy Michael, champion cyclist, J. S. S.; Linne, great botanist, "Hot Stuff" on club runs, H. B. F.; T. J. Byrnes, great bobbie, "S;" Tom Pepper, great liar—too many entries in this class; if each aspirant will send $5 to the business manager of this Journal, arrangements might be made for a special issue.

POST GRADUATE '98 NOTES

Herman F. Ahrens, '97, who was fatally (?) injured by an explosion while assaying alkaloids in the Pharmaceutical Laboratory, is slowly recovering. In an interview he desired to most emphatically contradict the statement that the accident occurred while preparing high explosives with "Granz." It is rumored that a benefit will shortly be tendered.

Glassford and Hager are supposed (?) to be the two hardest workers in the class. Already their friends are beginning to call them doctors.

N. Y. C. P. C. C.

President, Nelson S. Kirk; Vice-president, Rudolph Gies; Secretary-Treasurer, Capt. L. G. B. Erb, 539 E. 88th St.; Lieutenant, Harry B. Ferguson; Color Bearer, Otto N. Frankfurter.

Annual dues, $1, payable quarterly; no initiation fee.

SCHEDULE RUNS FOR MAY.

1, Mount Vernon; 4, Point View Island; 8, Westchester; 15, Lynbrook, L. I.; 18, Coney Island; 22, Fort Hamilton; 29, Hackensack.

Scorchers' notes were sent in last month—so find the editor.

I cannot too strongly urge members to join the L. A. W. Will gladly furnish information, indorse and forward applications.

Jake Stage is rapidly developing into a "warm baby." Should he continue his rapid strides, our scorching element will have to hustle for prizes at the outing.

Frank N. Pond has kindly consented to conduct half of the Sunday runs hereafter, consequently all members will now have ample opportunity of participating. "Get your moneys' worth."

One lady accompanied us on our run to Bergen Point, and well did she keep up with the pace. Miss Androette is her name. We trust that she will frequently favor us with her presence now that the season has formally opened.

Don't lose sight of the fact that the point view track has been altered, and that some valuable prizes are going to be awarded in the cycle events of the outing on Wednesday afternoon, June 8th. SCORCHER.

The N. Y. pharmaceutical journals of late have contained numerous articles regarding the shorter hours movement, pro and con, and I regret to note that the latter accounts have predominated.

This, I think, is a deplorable condition of an educator of enlightened methods, and can only account for it as being due to a tendency to cater to a certain class of bigoted pharmacists who, having always slaved, see no reason for a change. I will admit that the statue will inconvenience some of them, but, like all other new measures, time will remedy this, so that in a few years they will be ashamed of the condition that has prevailed.

Many are of the opinion that the new movement will reduce wages by virtue of State immigration, but our reregistration pharmacy law together with the enactment of similar measures in other states, will soon eradicate this idea.

An investigation in this city gratified me upon learning that in several stores shorter hours were already in force with the result of better satisfaction to both the pharmacist and his clerk.

It would matter not what course instigators of this measure pursued, objections would be raised, therefore all honor is due Ex-president Doehrr in his untiring efforts.

I heard some say that they considered themselves better than a carpenter or hod carrier, hence their denunciation of the leagues' methods. I can correct their mistake by saying that these men came forward unsolicited as Americans, and honorably said, "Gentlemen, we deplore your condition, and will lend you our aid in your cause." Could any sentiment be nobler?

Life is but a short period at the longest. To every man there comes a day when he looks back over his past record, then it is that the humane deeds and not the money-making ones that give him solace, to those pharmacists who have supported the measure which gives fathers time to spend with wife and children, sons to enjoy pleasures of life, I tend my thanks as an

AMERICAN PHARMACIST.

One of our best-known physicians who is admired, perhaps, most of all for his kindly disposition, was walking up Broadway recently, when he came across a little girl, shoeless, hatless, and looking very woebegone. "What are you doing, little one?" asked he. "Please, sir, I'm begging," was the reply. "Why! have you no father or mother?" asked the physician. "Yes, sir," said the little girl. "Mother's a beggar, and father's a beggar, too." "Well! well! and have you no sisters and brothers?" "Yes, sir," was the reply again, "but sister's begging, too." And what is your brother doing?" was the next question. "Please, sir, he's in the College of Physicians and Surgeons." The physician looked his surprise, and said: "How is that; your father, mother, sister and yourself are all beggars, and your brother is in the College of Physicians and Surgeons; how do you explain that?" "Oh! sir," said the girl, "brother is up there on a shelf in a bottle."

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The Journal of Pharmacology

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CONTENTS.

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The
Journal of Pharmacology,

Devoted to the Advances Made in Materia Medica in its Branches.
Pharmacy, Pharmacognosy, Chemistry, Botany, Pharmaco-
Dynamics, Therapeutics and Toxicology.

Published by the Alumni Association of the College of Pharmacy of the City of New York.

VOL. V. NEW YORK, JUNE, 1898. No. 6.

MEDICINAL PLANTS OF NEW JERSEY.*

BY H. H. RUSBY, M. D.

This paper represents an attempt to enumerate with approximate completeness the more important medicinal plants of New Jersey, giving their distribution in the State, noting especially those which occur in the vicinity of the place where this meeting is being held, and offering suggestions of interest concerning a number of them. These suggestions relate more especially to certain deficiencies in our knowledge, and indicate directions in which members of the Association may be able to obtain the desired information.

The facts presented are the results of very extensive personal field work in the State, and are supplemented chiefly by the records accumulated by Dr. Britton, and published in his "Catalogue of the Plants of New Jersey," forming a part of the Report of the State Geologist, Vol. II., 1889.

Many comments have been published upon the great extent and diversity of the New Jersey flora, considering the small area represented, a result of its extension in a north and south direction, of its extensive littoral and of an unusual diversity in soil. We have nearly 2,000 species of flowering plants growing wild within the State.

Of the 200, or thereabout, plants which are made official by the U. S. P., and which represent the universal flora, no less than 83, or about 40 per cent., occur growing without cultivation in New Jersey, and of these, 61 are found within a radius of 10 or 15 miles of Summit. Besides these official plants, the State produces from 125 to 150 others of some com-

* Read before the New Jersey State Pharmaceutical Association, Summit Meeting, May 18th, 1898.

mercial importance, and a large additional number which have received more or less mention as possessing medicinal properties. This last mentioned class is not considered in my list.

It is not to be supposed that commercial importance attaches to the occurrence of all these species. As a matter of fact, comparatively little drug collecting is done in this State, a fact which is due to a variety of adverse conditions. It is, however, important to have on record something to indicate what plants find here a congenial soil and clime, so that in the future, when, doubtless, the cultivation of medicinal plants must be largely resorted to, we may be able to ascertain which of them are suited to cultivation within our borders.

In the list, as printed, those names which appear in capitals pertain to official plants. Those preceded by an asterisk (*) indicate plants growing in the neighborhood of Summit.

*Clematis Virginiana (L.). Virgin's Bower.

Not uncommon in the southern half of the State, and common and abundant in the northern.

*Hepatica Hepatica (L.) Karst. Liverleaf.

Same distribution as last.

Coptis trifolia (L.) Salisb. Gold-thread.

Rather widely scattered through the northern half of the State, but neither common nor abundant.

HYDRASTIS CANADENSIS L. Golden Seal.

Occasionally collected in the north during the early history of botany in the State, but not now known.

*Actaea alba (L.) Mill. White Banebury.

Common in the northern half of the State, and occasional in the southern. I have collected it with purplish fruit, but its thick pedicels distinguish it well, without regard to color.

*Actaea rubra (Ait.) Willd. Red Baneberry.

Scarcely so common as the last, but has a similar range. Either species might easily be collected for Cimicifuga.

*CIMICIFUGA RACEMOSA (L.) NUTT. BLACK COHOSH.

Very common and abundant in rich, rocky woods of the middle district, especially in trap-rock soil. Occasional to frequent in other sections. This is one of the handsomest wild flowers of the State. At least seven species occur in the United States, and no comparative studies have been made of their pharmacognosy or properties. If the latter are not identical, we have no guide to identification of the unofficial species, should they be collected and marketed. The fact that only the official species occurs in this State would render certain the identity of any material collected here.

* Magnolia glauca L. Magnolia.

This is rare north of the coast swamps, but abundant in the southern parts of the State. It occurs here only as a tall shrub, while it is a tree of 40 feet or more in the Gulf region.

*Liriodendron Tulipifera L. White Wood or Tulip-tree.

Common throughout. Regarded as our largest tree.

*MENISPERMUM CANADENSE L. MOONSEED.

This has about the same range as Cimicifuga, and grows with it. The gross appearance of the rhizome found in market, coming from Texas, is so different from that which I have collected hereabout as to lead to the suspicion that careful study may determine these as distinct species.

Berberis vulgaris L. Barberry.

Escaped from cultivation in various localities.

*CAULOPHYLLUM THALICTROIDES (L.) MICHX. BLUE COHOSH.

Occasional in the northern half of the State, but nowhere abundant.

*PODOPHYLLUM PELTATUM L. MANDRAKE.

Occasional in the southern, and common and abundant in the northern parts of the State. Abundant as it is, it could not be collected in competition with the West, where acres of it in a single locality can be turned out by the plow.

*Castalia odorata (Dryand) Woodv. & Wood. White Water Lily.

Abundant in most parts of the State.

Sarracenia purpurea L. Pitcher plant.

Not uncommon in swamps throughout the State.

*SANGUINARIA CANADENSIS L. BLOOD-ROOT.

Common and abundant, except in the southern districts, where it is occasional. One of our most beautiful spring flowers.

It is probable that the Pharmacopoeia is in error in directing that this be "collected in the autumn." It flowers in earliest spring, matures its seed and perishes quickly, the remains of its aerial tissues disappearing rapidly. It is doubtful if any traces of its existence could be found in the autumn, so that to find and collect it at that season is probably impracticable.

*CHELIDONIUM MAJUS L. CELANDINE.

Commonly established in waste places everywhere, and growing luxuriantly.

*BRASSICA ALBA (L.) BOISS. WHITE MUSTARD.

*BRASSICA NIGRA (L.) KOCH. BLACK MUSTARD.

Both the mustards occur commonly and thrive well, showing their adaptability to cultivation here.

*Bursa Bursa-Pastoris (L.) Britton. Shepherd's Purse.

One of the commonest of weeds. Frequent mention of this plant has been made of late years as furnishing a valuable vulnerary.

*Helianthemum Canadense (L.) Michx. Frost-weed.

Very common and abundant throughout, especially in gravelly soil on the borders of forests.

*Viola. The Violets.

Various members of this genus have found a use in medicine, and they all apparently possess ipecac-like properties. About 25 species occur in this State, the most of them in this vicinity.

POLYGALA SENEGA L. SENEGA.

The occurrence of this species as one of the rarest plants of the State, formerly abundant, is an illustration of the possibility of exterminating a useful species when unaided nature is trusted with its perpetuation.

Polygala polygama Walt.

Occasional in the north, frequent in the south and common along the sandy coast.

*SAPONARIA OFFICINALIS L. SOAPROOT.

Very common and abundant along roadsides. The roots obtained from the plant here have a totally different appearance from those which are imported.

*Hypericum perforatum L. St John's Wort.

Very common in fields and along roadsides.

ALTHAEA OFFICINALIS L. MARSH MALLOW.

It is doubtful if this plant occurs. It has been reported by only one botanist, and it is probable that he mistook something else for it.

*Tilia. Basswood.

Two native species occur. Although these are not used medicinally, as is the European species, it is altogether possible that they would serve the same purpose.

*LINUM USITATISSIMUM L. FLAX.

This occurs frequently, and demonstrates its adaptability to cultivation here.

*GERANIUM MACULATUM L. GERANIUM.

One of the commonest and most abundant of our wild plants, and admirably adapted to collection for medicinal purposes.

*XANTHOXYLUM AMERICANUM MILL. PRICKLY ASH.

Rather common, but not sufficiently abundant, except in a few localities, to be adapted to cultivation.

Ptelea trifoliata L. Wafer-Ash.

Occasional near the Delaware.

*Ailanthus glandulosus Desf. Ailanthus.

Very common along roadsides and in waste places.

*Ilex verticillata (L.) A. Gray. Prinos or Black Ader.

Common and abundant in low grounds, throughout.

EUONYMUS ATROPURPUREUS JACQ. WAHOO.

This valuable plant occurs in quite a number of localities along the Passaic and other streams, and flourishes well.

*Celastrus scandens L. False Climbing Bittersweet.

Common and abundant in the hilly and mountainous northern half of the State.

RHAMNUS FRANGULA L. BUCKTHORN.

Several years ago it was found that an unrecorded species of Rhamnus grew in the swamps near New Durham, and also at several points in Long Island. It was at first supposed to be an undescribed species, but was subsequently identified as R. Frangula, and it was concluded that it had probably escaped from the ancient botanical garden of Michaux, which was located at New Durham.

Rhamnus cathartica L.

Found in several scattered localities.

*Ceanothus Americanus L. New Jersey Tea.

Common and abundant throughout the State.

*RHUS GLABRA L. SUMACH.

Everywhere common.

*RHUS RADICANS L. POISON IVY. MERCURY.

Very abundant in every part.

*Baptisia tinctoria (L.) R. Br. Dyers Green Weed.

Common throughout, and exceedingly abundant southward.

*Robinia Pseudacacia L. Locust.

Frequent throughout the State.

*Stylosanthes biflora (L.) B. S. P.

Common south, and occasional in the northern parts of the State.

*Cassia Marylandica L. Maryland Senna.

Everywhere frequent to common.

*PRUNUS SEROTINA EHRH. WILD CHERRY.

Everywhere common and abundant. In the northern parts the Choke-cherry and Wild Red Cherry are also common, but they are rare southward.

*Spiraea salicifolia L. Hardhack.

Very common and abundant from the middle of the State northward. The S. Tomentosa, or Steeple Bush, similarly used, is also abundant.

Porteranthus trifoliatus (L.) Britton. Bowmans Root.

Occasional in the north.

Rubus strigosus Michx. Wild Red Raspberry.

Occasional in the north.

(*To be Continued.*)

SOME CLINICAL METHODS OF EXAMINING THE BLOOD.*

By Thaddeus Walker, M. D., Detroit, Mich.
Microscopist to Harper Hospital.

Hematology, or the study of the blood, a comparatively new branch of scientific medicine, is already too exhaustive in scope to be dealt with fully in the short time allotted this paper. It is, therefore, my purpose this evening to consider only a few of the more important methods of examining the blood, which are to-day of value to the clinician.

It is very valuable in many cases to know if the corpuscles are diminished in number. For this purpose the Thoma-Zeiss corpuscle counter approaches nearer exactness than any other method yet devised. The principle of this instrument is an actual count with the microscope of the corpuscles in a known dilution of blood.

Technique.—We first prick the lobe of an ear or a finger, and as soon as the blood flows freely we insert the end of the tube in the drop, and then gently but steadily suck upon the mouthpiece at the end of the rubber tubing, care being taken not to admit any air. We fill the tube completely up to the mark 0.5; if we go a little beyond, some may be drawn back by means of blotting paper, but this is not recommended when we have gone over one-thirty-second of an inch beyond the mark. We now quickly wipe away any blood on the outside of the tube, place the end in a diluting solution,[1] immediately begin to suck some of this up into the

[1]DILUTING SOLUTION FOR RED BLOOD CORPUSCLES.

Hydrargyri bichlor	0.5
Sod. sulph	5.
Sod. chlor	2.
Aquae destillat	200
Misce.	

bulb, rotating the tube at the same time, so as to mix the blood and solution and fill up to mark above bulb. We now blow out the diluting solution in the tube which is not mixed with blood, and allow a small drop from the bulb to flow onto the island in the slide. We next place a cover-glass over the drop, but if the drop be too large some will run over into the moat, which necessitates our cleaning the slide and trying another drop; practice teaches us about the size of drop to cover the island, or at least nine-tenths of it. If we have filled the tube with blood up to 0.5 mark and with solution to mark beyond bulb, we have a dilution of 1:200. We now place slide under microscope and focus upon the fine rulings on the

* Read before the Detroit Academy of Medicine.

island. We find them forming small squares, sixteen such forming a large square enclosed by three lines on each side. We now proceed to count the corpuscles by counting those totally within a small square and those touching or overlapping two sides of the square, as the right and lower sides, and proceed with other squares in same way. We thus avoid counting a corpuscle twice and failing to count one. We should count about one hundred squares, then clean the slide and take another drop, and count one hundred more, in all about two hundred squares. As each square is 1-400 millimeter square and the distance from the island to the cover-glass .1 millimeter, we have in each square the number in 1-4000 cubic millimeter. So, if we take the total number of corpuscles counted, divide by the number of squares, we have the average number in one square, and multiply by 4,000 we have the number in one cubic millimeter of diluted blood; again multiply by the amount of dilution and we have the number in one cubic millimeter of blood. The white blood corpuscle counter is constructed upon the same principle, the dilution[2] generally being 1:10,

[2]A DILUTING SOLUTION WHICH STAINS THE LEUCOCYTES IS TOISSON'S.

(a)	Methyl violet, 5 b	0.025
	Neutral glycerin	30
	Distilled water	80
(b)	Sod. chlor	1.
	Sod. sulph	8.
	Distilled water	80

Mix (a) and (b) and filter.

so it needs no further explanation. The technique seems, at first sight, simple, but its practical application is fraught with many petty annoyances. We may admit air into the tube; we may, especially when the coagulability of the blood is rapid, as in chlorosis, owing to slowness in manipulation, get coagulated masses in the tube; we may draw the blood too far beyond the stopping mark; in fact, we may encounter many failures until practice in the use of the instrument lessens the chance of a mistake. Each one of these errors means a thorough cleaning of the instrument—a tedious procedure. We first wash out with water, then with absolute alcohol, then with ether, and then dry, which is accomplished easiest with air blown through the tube from an atomizer bulb. Care must be taken to have the tube thoroughly clean, free from dust, and perfectly dry before using it. A modification of the red blood corpuscle counter by Prof. Miescher, of Basel, is used by me in preference to the tube, because it certainly lessens the chances of error. You will notice we have three stopping places—1-200, 1-150 and 1-100. If we go beyond the first, we may go on and try for a landing at the second, that is, 1-150. There are also two little lines above and below each station, which helps us more easily

to read our level, as capillary attraction does not give us a sharp cross-section.

We next determine if the amount of hemoglobin is diminished, for this purpose we have many instruments, one of the best being Fleischel's hemometer. It is constructed so that a known dilution of normal blood will exactly correspond in color with 100 per cent. upon a sliding scale of ruby glass, which passes between the diluted blood and the light. A diminution in amount of hemoglobin gives a lighter color to the solution, which will be found to correspond with a lower percentage upon the scale.

Technique,—Each of the small capillary tubes which accompany the instrument has a capacity of about six and one-half cubic millimeters. By placing the end of one of these tubes horizontally in a drop of blood, the tube is filled by capillary attraction. We now partially fill one of the chambers with distilled water and dissolve out the blood in tube. Next fill both chambers with distilled water, and in a darkened room, with candle light, we reflect light from the white reflector through the chambers. By means of the thumbscrew we slide the ruby glass under the chamber containing water until the two chambers both have the same shade of color. Now read the figures on the scale. These figures do not represent the percentage of hemoglobin in the blood, but merely the percentage in accordance with this instrument, which is constructed so that with five million red blood corpuscles the scale will show 100 per cent., and, naturally, with a less number the scale would show diminution of hemoglobin; therefore when we find diminution of hemoglobin we must know the number of red blood corpuscles, so as to ascertain if this diminution is due to a diminution of corpuscles, or to a diminution of hemoglobin in the individual corpuscles, or due to both factors. We express this much better by what is termed color-index, or the amount of hemoglobin per red blood corpuscle.

EXAMPLES:

(1) Number of red blood corpuscles three million. Fleischel shows 30 per cent. What is the color index?

If 5,000,000 red blood corpuscles should show Fleischel 100%
Then 3,000,000 red blood corpuscles should show Fleischel 60%
And 60% Fleischel would have color-index 1
Therefore 30% Fleischel would have color-index .5—a case of chlorosis.

(2) Number of red blood corpuscles 1,200,000. Fleischel 48%. Color-index?

If 5,000,000 red blood corpuscles should show Fleischel 100%
Then 1,200,000 red blood corpuscles should show Fleischel 24%
And 24% Fleischel would have color-index 1

Therefore 48% Fleischel would have color-index 2—a case of pernicious anemia.

Why color-index is 2 will be explained later.

We often read and hear of percentage of hemoglobin in a case without reference to the number of corpuscles. You can readily see that the former, without reference to the latter, gives no information regarding the reduction of hemoglobin.

We have another method of estimating the amount of hemoglobin which, owing to its simplicity, is worthy of mention. It is Hammerschlag's indirect method of taking the specific gravity of the blood. With a mechanical mixture of two liquids, such that a drop of blood in it neither sinks nor swims, we have a mixture of about the same specific gravity as of the blood. So taking the specific gravity of the mixture we have, for clinical purposes, the specific gravity of the blood.

Technique.—It is very simple. We prick the finger and allow a large drop of blood to drop into a mixture of chloroform three parts, benzol one part (specific gravity 1.055=that of normal blood). If the drop sinks add chloroform, if it swims add benzol, and so by adding one or the other, we bring the drop in the middle, where it remains. Now take the specific gravity of this mixture, which is approximately the specific gravity of the blood. The solids of the blood form 25 per cent. of the same, the half of which is hemoglobin, so a diminution in the solids means also a proportionate diminution in the hemoglobin. Upon this hypothesis Hammerschlag has worked out a table[3] which represents the amount of hemo-

[3]HAMMERSCHLAG'S TABLE.

Specific Gravity.	Hemoglobin.
1034-1037	20-30 per cent.
1037-1041	30-40 per cent.
1041-1045	40-50 per cent.
1045-1049	50-60 per cent.
1049-1052	60-70 per cent.
1052-1056	70-80 per cent.
1056-1059	80-90 per cent.
1059-1062	90-100 per cent.

globin according to the specific gravity. I consider this a very convenient method to use at the home of the patient, or when the hemometer cannot be used. It is also fairly reliable for clinical purposes.

The hematocrit precipitates the corpuscles in a graduated tube by means of centrifugalization, the bulk of the precipitate indicating the number of corpuscles. With normal blood the corpuscles pack in the tube, relatively to the number, but even then we do not know the elasticity or compressibility of the normal corpuscle; so with different veloci-

ties and an unconstant number of revolutions we get different results. Again, in leukemia and anemias corpuscles of different sizes and shapes would pack down differently from the healthy ones. This instrument is intended to take the place of the Thoma-Zeiss counter, which we admit is also not scientifically accurate, but the hematocrit does not seem to be as accurate, and its liability to error is greater. I believe that the time saved by its use and its reputed accuracy are not great enough to cause us to discard the actual counting with the Thoma-Zeiss, or, better, with Miescher's modification, above referred to.

We now turn to the morphology of the corpuscle, which can be studied in the fresh specimen, but many times to better advantage in the dried films. In the preparation of blood films, as well as in all other hematological researches, everything depends upon:—

Technique.—To begin with, cover-glasses must be clean and free from dust and oily material. We may do this by soaking in alcohol and ether, carefully wiping with a clean old linen handkerchief, and then putting them in a watch crystal, which is placed in an oven and heated to 150 degrees Centigrade. Care should be taken not to handle with the fingers, for the moisture will interfere with the even spreading of the blood. I take the watch crystal from the oven and place another over it, and carry the cover-glasses between the two watch crystals to the patient, then prick the ear, and, taking one cover-glass in the forceps, I allow a small drop to be touched at its apex by the centre of the cover-glass. I then place another cover-glass over it, so that about one-sixteenth overlaps, then without pressure draw the two steadily, evenly and quickly apart. If our cover-glasses are clean, and proper care has been used in drawing them apart, the blood will be evenly spread. If we have been careless the film will have little holes or rings in it, and the whole will present an uneven appearance. Practice alone enables one to make well-spread films. We next fix the films. Heat is recommended by Ehrlich, and is best if we use his triple stain. We place the films in an oven, and run the temperature up to 105 degrees Centigrade, withdraw the burner, and allow it to run up to 115 degrees Centigrade, then open the door and let it cool down. We may also fix in a mixture of alcohol and ether, equal parts, from fifteen minutes to an hour, or even longer. If dealing with a marked anemia better results are obtained by alcohol and ether. We have many methods of staining, the important being eosin-hematoxylin, eosin-methylen blue and Ehrlich's triple stain. The stain is simply spread on the film and washed off in one to five minutes. It is well always to stain the same length of time with the same stain. After washing we dry between filter papers and mount in Canada balsam.

We now take up the appearance of these stained films.

Plate I.[4] reresents normal blood. Notice the red blood corpuscles are all

[4]Dr. Walker's paper was illustrated by colored charts reproduced from stained films.

about the same shape, size and color. Each has a light spot in the centre, which is called the delle. This is due to the corpuscle being biscuit-shaped and not so thick in the centre.

Plate II. is primary pernicious anemia. Notice the diminution in number and amount of hemoglobin in some corpuscles, while others appear entirely filled with hemoglobin. There is a marked difference in size and shape. Some are several times the size of a normal red blood corpuscle, as seen in Plate I., another much smaller, and others have various shapes. The number of corpuscles, as you see, is diminished, but many are well filled with hemoglobin, especially the larger ones; consequently the amount of hemoglobin estimated with a hemometer would be greater than with the same number of normal corpuscles, and we would have a high color-index, which we have referred to under the discussion of color-index.

We can now take up the nomenclature of these forms. The normal red blood corpuscles are called erythrocytes, the larger ones megalocytes, the various shaped ones poikilocytes, and the small ones microcytes. Ehrlich calls both poikilocytes and microcytes schistocytes, for he says they are parts of an erythrocyte. They generally have a delle, which he accounts for by saying that the contents being hemoglobin its form is due to the discoplasm, and a schistocyte being a fragment of an erythrocyte it is able, without its discoplasm, to form a delle. In man erythrocytes have no nuclei, but we find them nucleated in the embryo. So we have erythroblasts, that is, nucleated red blood corpuscles. And following the above nomenclature, normoblasts, megaloblasts, microblasts and poikiloblasts. These are all pathological conditions of the cell, and we find, especially in leukemia, the nucleus undergoing division either by constrictions or in the various stages of karyokinesis.

The leucocytes have had more study devoted to them than any other constituent of the blood. Many attempts have been made to obtain a satisfactory classification. We will briefly review these classifications, so we may better understand the terms in use and their significance. The classification is generally a mixture of three methods, namely, according to supposed origin, according to form of nucleus, and according to the micro-chemic reactions of the granular matter in the cells. In classifying the leucocytes according to their origin (lymphocytes, splenocytes, myelocytes, etc.), we are very much in the dark. Many of the theories regarding their supposed origin are very interesting. Time will not permit us to discuss them, so we will simply accept these names for certain forms of leucocytes. Classification according to the form of nucleus gives us

mononuclear, large and small; transitional and polymorphonuclear leucocytes. The small mononuclear leucocytes, also called lymphocytes, as seen in Plates III. and IV., are small round cells, about the size of an erythrocyte, or a little smaller, having a relatively large, dull-colored nucleus, which generally lies eccentrically, very seldom in the centre of the cells. Stained with eosin-hematoxylin, the protoplasm exhibits many shades of reddish violet. In fact, the smaller the cell and larger the nucleus, the more reddish is the protoplasm and the more intensely dark is the nucleus. Sometimes it is difficult to distinguish from an erythroblast, but the nucleus never has a chromatin net, as in a young erythroblast, and never the dark lustre, as in an old erythroblast. The large mononuclear leucocytes, also called splenocytes, as seen in Plates IV. and V., are large cells, two or three times as large as an erythrocyte, having a round nucleus, which, in comparison with a lymphocyte, is of a much lighter shade. The protoplasm is also much paler.

The transitional forms, Plates III. and V., in comparison with splenocytes, correspond in size and color of both nucleus and protoplasm, the only difference being that the nucleus is not entirely round, but has a slight indentation (bean-shaped) or several notches.

The polymorphonuclear leuocytes have been, and are yet, for the sake of brevity, called polynuclear leucocytes. The nuclei are always polymorphous. Even when at first sight they seem made up of separate parts, upon close observation we find these parts connected by thin threads. They are in general somewhat smaller than splenocytes, but larger than erythrocytes. The nucleus has a deep color, and the protoplasm is a little darker than in a splenocyte. They are probably derived from the transitional forms which we saw, kidney-shaped, horseshoe-shaped, etc., these finally tearing apart, forming polymorphonuclear forms.

Classification according to the microchemic reaction is done through the granulations of the leucocytic protoplasm. These granulations are stained by different stains, and we can determine the particular granulation by its peculiar stain. We have acid, alkaline and natural stains. Those granulations taking on the color of the acid stains are called acidophile granulations. The alkaline stains give basophile, the neutral stains give neutrophile granulations, and those stained by both acid and alkaline stains are amophile. With Ehrlich's triple stain, which is a mixture of eosin, orange green and methyl green, the erythrocytes are yellow, the nuclei of the leucocytes are green, the protoplasm of the mononuclears is not visible, and the protoplasm of the polymorphous leucocytes shows granulations which are purple. We also find a few polymorphonuclear cells with bead-like granules, the size varying, stained a bright red by the eosin, hence their name, eosinophiles, or acidophiles. We see the mononuclear cells show no granules; these have been called "young" cells.

We next find the polymorphonuclears with neutrophile granulations, which are called "adult" cells, upon the hypothesis that the protoplasm of the lymphocyte takes on granulations as it becomes a polymorphonuclear, and carrying it still further the neutrophile granulations become acidophile, and we have the eosinophile, or "old" cell.

Just how and where these transformations take place, no good explanation is given. However, the theory is a convenient one in explaining myelocytes. If we imagine a mononuclear whose granulations have ripened into neutrophile, but the nucleus has not become polymorphonuclear but has remained mononuclear, we have a picture of a myelocyte. These are not found in normal blood, but are numerous in the bone marrow. Where we have found the neutrophile myelocyte we may also find a further step in the neutrophile granulations having become acidophile, the nucleus still remaining mononuclear. These are eosinophile myelocytes.

Neusser, by putting an excess of methyl green in Ehrlich's triple stain, obtained little black dots around and over the nuclei, which he called perinuclear basophile granulations. During the physiological leucocytosis of digestion, especially after a heavy meat dinner, they are always present, and Neusser thought they had something to do with uric acid, for patients with this diathesis have these granulations constantly present. However, they have been found in too many other diseases to be any longer considered a diagnostic sign of the uric acid condition. He further stated that tubercular patients with these granulations seem to withstand the ravages of the disease better than those in whom few are found. If this be so, we have a good prognostic sign for tuberculosis.

We may now turn our attention to leucocytosis and its varieties. We have been careless with this term, which really means an increase in the number of leucocytes over the number normally in the case at hand, but lecuocytosis and leukemia have been associated together, until the former was believed to indicate the latter. Such is not the case, for leukemia is diagnosed to-day as much by the quality as by the quantity of leucocytes. Normally the number of leucocytes in a cubic millimeter of blood is between six and nine thousand, or about seven thousand five hundred. Over nine thousand or under six thousand is considered pathological. The increase in number is leucocytosis and the decrease is called leucopenia. Normally there are five hundred erythrocytes to one leucocyte, but this may in disease be greatly reduced and even inverted, so there is one erythrocyte to two leucocytes. Normally we find leucocytes in the following proportion:

64% Polymorphonuclear.
28% Small mononuclear (lymphocytes).
6% Large mononuclear.

$\frac{1}{2}$% Transitional forms.
2% Eosinophiles.

In childhood the proportion is somewhat different. Until about the tenth year we find from 28 to 40 per cent. polymorphonuclear, and from 50 to 60 per cent. mononuclear, which must be kept in mind when examining the blood of children. We have leucocytoses which are normal, or rather physiological, occuring in the newborn, during digestion, pregnancy, lactation and in the moribund state. These factors influencing the leucocyte should always be kept in mind when examining a patient's blood.

A proportionate increase of all the leucocytes is called an absolute leucocytosis, a condition very rarely met with. An increase of all the leucocytes, with an unproportionate increase of one variety, is an absolute relative leucocytosis; an example being an absolute relative polymorphonuclear leucocytosis, which, in other words, means an increase in the number of leucocytes with a prevalence of the polymorphonuclear cells. An increase of only one variety of leucocytes is a relative leucocytosis; an e -ample being a relative mononuclear leucocytosis, which means a leucocytosis in which only the mononuclears are increased. Absolute relative polymorphonuclear leucocytosis is most frequently met with in acute infectious diseases and in malignant neoplasms. Relative small mononuclear leucocytosis (lymphocytosis) is caused by rickets and hereditary syphilis in children, secondary syphilis, Basedow's disease, hemophiliae, goitre, nephritis, etc., in adults. Relative eosinophile leucocytosis, or eosinophilia, is met with after the crisis in pneumonia, and is a good prognostic sign in scarlet fever and in chlorosis. We also find it in uric acid diathesis, skin diseases, trichinosis and many others. Leucopenia, or absence of leucocytosis, is met with in typhoid fever, pernicious anemia and carcinoma of esophagus.

I have simply touched upon these various forms of leucocytosis in ord r to point out their importance, and with no intention of discussing their significance, which would require a paper by itself.

The various methods of examining the blood which I have presented this evening are those now in vogue, and with which much can be learned regarding a patient's blood. It is true that we are able to make a positive diagnosis in only four or five diseases, yet we can supply the links to the chain of evidence which goes to make up a diagnosis in a large number of diseases. Evidence of pus formation in the body, as revealed by the blood, has in my limited experience here induced two surgeons to operate with success. Even the fact that the blood is normal is sometimes of great value in eliminating certain diseases. The blood is also of some prognostic value, and further study may not only help us in diagnosis, but to a better knowledge of certain diseases.—*Physician and Surgeon,* May, 1898.

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EDITORIAL.

THE FUTURE OF MATERIA MEDICA.

The writer, acting as examiner for one of our State institutions, was deeply impressed with the methods employed in training young pharmacists to become useful and practical members of the profession. While the prescribed course of pharmaceutical education embraced a thorough knowledge of pharmacy—materia medica, chemistry, and allied sciences—both theoretically and practically, and the students were brought to a high degreee of perfection in these branches, yet he discovered a new branch of pharmaceutical science, whch up to this time no other has seen fit to father or to foster.

In a room set aside for the purpose, could be seen a full line of specialties, semi-proprietary remedies, patent nostrums and combinations of all kinds in the shape of syrups, elixirs, wines, cordials, extracts, pills, powders, ointments, suppositories, synthetical products, etc., etc., all especially prepared to meet the present demands from the busy, careless or ignorant physician.

While the writer appreciates the effort of this institution to impart a practical knowledge of later day pharmacy to its graduates, he deplores

the fact that it has seemingly become a necessity to devote a portion of their valuable time to the growing evil of the nineteenth century.

The question naturally arises, What will become of our Pharmacopoeia and where will the addition of new combinations end?

In examining a number of these goods, the writer found some of the most glaring pharmaceutical and chemical incompatibilities made at the expense of their supposed therapeutical value. Few of them were new additions to the physician's armamentarium, while the great majority were only combinations of some of the time-honored and valuable lists of organic and inorganic drugs and chemicals.

The next step in advance (?) of medical education will probably be the recognition by the Pharmacopoeia and United States Dispensatory of a number of the semi-proprietary remedies, and the following question would naturally be an appropriate one in an examination: "Give the histories, processes of manufacture, does and effects of Fraud's Rejuvenator, Trickster's Anti-consumption Cordial, and Dr. Buncomb's Migraine Specific."

A united and honest appeal should be made by the medical press to suppress the encroachment of these remedies, a great many of which are placed upon the market for mercenary purposes only, and made possible by the carelessness with which the average medical practitioner allows himself to be persuaded into using and prescribing them.—W. O. G., in Fort Wayne Medical Journal.

THE KENTUCKY DEFINITION OF THE PRACTICE OF MEDICINE.

The *Buffalo Medical and Surgical Journal* quotes Judge Thompson, of Kentucky, as giving the following definition of the practice of medicine, in pronouncing sentence upon an osteopath, who was convicted of subjecting a child with tubeculous deisease of the hip joint to cruel and unnecessary torture: "Any person, who, for compensation, professes to apply any science which relates to the prevention, cure or alleviation of the diseases of the human body, is practicing medicine within the meaning of the statute."

We want to commend Judge Thompson for his clean, concise, yet comprehensive definition.

The Legislatures of some States passed laws which declared that he who practiced osteopathy did not practice medicine, and it looked for a time as though the advocates of this new delusion were to be successful in gaining permission to practice in all the States, in spite of the medical

practice acts. This precedent of Judge Thompson's, however, will undoubtedly put a check to further effort in Kentucky, at least, and it is to be hoped in other States as well.

Osteopaths are not allowed to practice in Indiana as yet, but if such men as L. J. Bobilya (joint Senator Allen and Whitley counties) succeed in obtaining future political preferment, we will have no medical law at all. This philanthropic individual persisted in lending his aid and vote to defeat the present medical bill.

The New York Legislature has lately been asked to pass a bill to regulate and legalize the practice of osteopathy. We hope it will receive the fate of similar bills in South Dakota, Colorado and Illinois, in case it passes the legislative body, namely, veto. B. VAN S.

ABSTRACTS.

The Protecting Role of the Lymphatic Nodes in Certain Diseases. —According to M. P. Hahn, in the *Normandie Medicale,* for February 15 *(Independance Medicale,* March 9), the role of the ganglion in infection comprises two distinct periods: One of the collection, in which it acts by protecting the part of the economy to which it belongs by a derivation of the virulent product. But soon after becoming hypertrophied, and having done the work of phagocytosis, it succumbs in its physiological function, and becomes a generating element of extreme danger.

This course of events undergoes various forms, according to the nature of the infection. The ganglion plays a considerable role in syphilis, in which the lymphatic element is shown to be distinctly protective. In epitheliomatous infection, on the other hand, the ganglion assures a relapse, and its speedy destruction is extremely necessary.

Antipyrine and Lactation.—M. Fieux *(Revue internationale de medecine et de chirurgie pratiques, 1897, No. 18; Centralblatt fur Gynakologie,* Feb. 26, 1898) has been led by numerous observations to the following conclusions: Antipyrine undoubtedly enters the milk. Doses of fifteen grains, given twice in the course of two hours, cause persistence of the drug in the milk for five hours. In from nineteen to twenty-three hours no further trace of it can be found; consequently the maximum time required for its disappearance is eighteen hours. Only a small amount enters the milk; at most but three-quarters of a grain are found in a quart,

and that only when a drachm of the drug has been taken within sixteen hours. The quantity of milk and the amount of casein and butter contained in it are not affected, and its quantity is not changed. The milk appears to have no inurious effect upon the nursling.

The Dangers of Coca Wines.—The *Chemist and Druggist,* in an editorial under the above title, says that there has been a large increase of intemperance among invalids, due to the enormous consumption of coca wine, but that the evil is not entirely confined to invalids and convalescents, but pervades all classes of society, women and children being the chief victims.

The term coca wine has no definite meaning, inasmuch as there is no official formula for its preparation. In every case the basis is a strongly alcoholic wine, containing anywhere from 18 to 30 per cent. alcohol. In an American work on pharmacy we are told that the best coca wine is made by adding an ounce of fluid extract of erythroxylon, an ounce of alcohol, and an ounce of sugar to fourteen ounces of claret, but it is significantly added that "in place of claret any other palatable wine may be used, according to the demand or preference of the prescriber or customer." The dangers of preparations of this description are obvious. The patient not only acquires a liking for alcohol, which is presented in its most seductive form, but soon falls a victim to what Erlenmeyer calls the third scourge of humanity—the coca habit.

It is surprising that in recent works on pharmacology and medicine so little is said regarding the subject, the only exception being in the case of the fourth edition of the late Dr. Milner Fothergill's "Practitioners' Handbook of Treatment," where the following statement occurs: "Coca wine and other medicated wines are largely sold to people who are considered, and consider themselves to be, total abstainers. It is not uncommon to hear the mother of a family say, 'I never allow my girls to touch stimulants of any kind, but I gave them each a glass of coca wine at 11 in the morning, and again at bedtime.' Originally coca wine was made from coca leaves, but it is now commonly a solution of the alkaloid in a sweet and strongly alcoholic wine." This is really the gist of the whole matter; coca wine is largely consumed by people who fondly believe themselves to be total abstainers, and who are active enough in denouncing those who take a little wine or a glass of beer at their meals.

Alumni, College and Class Notes.

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THE AMERICAN MEDICAL ASSOCIATION.

At the annual meeting of the American Medical Association, which commences at Denver, Col., on June 7, Messrs. McKesson & Robbins will place on exhibition a series of water color drawings illustrating the life history of the various organisms which cause malarial fevers. These plates will represent a magnification of the parasites of 20,000 diameters. A drawing on such a scale has never before been attempted, and the study necessary to perfect these illustrations has resulted in bringing out features in the organisms which have never before been recorded. The series, we venture to say, will represent a new departure in the study of these organisms, and we strongly urge our readers not to fail to visit this attractive exhibition.

'78 NOTES.

George P. Bagley is manager of the Hegeman store, on Fifth avenue and Fifty-ninth street.

'82 NOTES.

Charles E. Tallman has sold his store on Fulton street, Brooklyn, to J. Richter, and is now the proprietor of a new one on Gates and Lewis avenues.

A. G. Stafford has returned from his trip to St. Louis. Mrs. Stafford accompanied him.

'94 NOTES.

"Here's to the Alumni boys in the Navy! May they meet with the success they merit and return to us 'ere long, well recompensed for their patriotism!"

I have often read about Easter parades on Fifth avenue, but never have I seen anything that so inspired me as when I witnessed the Eighth marching to camp, and when I saw the majestic form of our own Tom—I mean Sergt. Davies—looming up, my joy knew no bounds, for he looked every inch a soldier, and caused no end of comment because of his fine appearance. Sergt. Davies has been persuaded to remain and become hospital steward of the 108th, hence we shall have him at our outing.

Commencement Night truly reminded me of old times. When we arrived upon the scene of action we realized that there was strength, hence no time was lost in joining forces with '93, after which our many friends were visited. We were represented by Eeby, Ankerson, Youngs, Sergt. Davies Erb, Pond and Kirk.

Samuel D. Kay, writing from Key West, as apothecary on the gunboat Newport, says that the boys were quite pleased at the prospect of an affray in the near future.

Otto Grube, who for some time has been with Louis Lehn, on Park avenue and 64th street, continues in the employ of Mr. Timnerman, the successor.

T. T. Lauffer is now the proprietor of a handsome store on Broadway, Brooklyn, where, under his management, elegant pharmacy will be practised with a becoming skill.

Hintlian, whom I recently noted as having left the Cliffe Pharmacy, on the Bowery, sailed in April for his home in Kara Hissar, Turkey.

Banks Bouton has moved to enlarged quarters on Main street (New Rochelle), where he is meeting with much earned success.

'95 NOTES.

Dr. Harry B. Ferguson left on May 14th for a trip to his home in Little Falls, N. Y. We hope to find him in good health on the day of the Outing.

Dr. Rudolf continues to be the "busy man" at College, together with the "Factotum" he is in a condition of continual hustle.

I had the pleasure of meeting Agatson a short time since. He is located on Lexington avenue and 92d street, this city. Last year, while with Fountain in Jersey City, he was hospital steward of the Second Regiment.

Ira Belfry is still with the Hegeman Corporation, on Lower Broadway.

Julius Tannenbaum has passed successfully the examinations for second-year students at the Long Island Hospital Medical College, and expects to receive his sheepskin next spring. He has just sold his drug store on Myrtle avenue, Brooklyn, to Mr. Chauvin, who was for some time past the head clerk at F. G. Werner's pharmacy, on Ninth avenue, near Thirty-fourth street, this city.

'96 NOTES.

Paul Thielke has severed his connection with the Kessler Pharmacy, on Second avenue, and is now with Sargent, in Jersey City.

Adrian Hommell has been appointed hospital steward of the Fourth Regiment, N. G., S. N. J.

C. L. Stephens, for some time with Quencer, on Ninth avenue and 57th street, has purchased with Mr. J. Rodgers the store on Seventh avenue and 128th street.

William Branner, who since graduation has been with Herman Krussman, in the oldest established store in Hoboken, recently purchased the full interest.

Charles H. Lowe has resigned his clerkship at Frank H. Gundlach's pharmacy, Columbus avenue and 106th street, and enlisted in the United States Army as a hospital steward. He left with the Eleventh Regiment for Chickamauga on Monday evening, May 23. His position at Mr. Gundlach's is temporarily filled by his brother, Francis A. Lowe, who has returned to this city after a sojourn of about a year at Liberty, Sullivan County, N. Y., where he had gone for his health, which at the present writing is very much improved.

'97 NOTES.

J. J. McCaffery, who for some time had been in the Hegeman Ninth street store, is now at his former stand in their 30th street branch. He has promised to be on hand to greet his friends at the Alumni Outing, on Wednesday, the 8th.

S. Sumner Shears was unanimously elected second vice-president of the Alumni Association last month; about the same time he became a partner in the Lowe Pharmacy, on the Boulevard.

Arthur J. Palmer, writing from Athens, Ga., where he is in business with his father and brother, says that the '97 reporter's work is deplorable, and Meinecke, "he says nothing."

'98 NOTES.

It is really remarkable how '98 has scattered since the Commencement. Of course, some of the boys have gone home, but I imagine a host must have entered Uncle Sam's service in different capacities. I met Gellert at the Alumni dance, on May 11th, when I elicited the following information regarding '98 men in the Navy, of whom there are twenty-six:

Fraser, Norfolk (Va.) Navy Yard; Jorgenson, do.; Eickwort, do; Richards, do.; Patton, do.; Sigel, on cruiser New Orleans; Gellert, on cruiser Thespian; Alpers, on cruiser Maple; Miles, Brooklyn Navy Yard; Wild, do.; Beckary, do.; Hildebrandt, do.; Teufer, do.; Voriseck, do.

Lewis H. D. Fraser has been elected third vice-president of the Alumni Association, a much-coveted position, which has been held by such notables as Ehrgott '94, Hensel '95, Vincent '96 and Glassford '97. We trust that upon the conclusion of the war he will spare no pains to demonstrate the material '98 was made of.

E. A. Keefer is regimental hospital steward of the Twelfth Regiment, which has been encamped at Chickamauga Park for some time.

Rudolph Eberhardt has accepted a position in the Hetherington Pharmacy, on Vanderbilt avenue, this city.

N. Y. C. P. C. C.

Schedule for June:
5th—"Blind Run."
8th—Annual meeting and club races.
12th—Tottenville.
19th—Bayside.
22d—Coney Island.
26th—City Island.

Have you seen our new flag? It's "all right," and we're making good use of it, too.

Are you thinking of getting a new cycle suit? Don't forget that you can get the official N. Y. C. P. C. C. uniform, '98 model, at a special rate through Capt. Erb.

The Outing is to be held in a few days. With three cycle events, our boys will have a chance of winning some of the club medals, so don't neglect bringing your wheel, as there is no extra charge for transportation.

BLIND RUN ON JUNE 5.

Of course, it is not every rider who understands what character of a run this is. In the big clubs we find that in planning weekly outings that we cannot select runs every week to please all, and accordingly our fixtures are sometimes slimly attended. To create an interest in runs we have instituted the "blind run," and, possessing many novel features, it has been a big success. You see, the run is called by the captain of the club, and the members show up at the starting point. Whoever leads the run starts ahead and looks for the most unlikely routes. If he has been over the route before the surprises will not dismay him as they will the other members. He leads the procession along good roads until he comes to a place where possibly a lane of a cow path leads off toward a wild-looking waste. But all have to follow. The leader must be a pretty strong rider, but as he is at the head all the time he is able to pick his way better than are the other riders, and is not in the danger of being piled up with a bunch in a tumble. The riding is rough, but there is a spirit of fun in the adventure, and the riders manfully plug along. Of course, we find that some tenderfoot will drop out along the route, but we generally manage to pull through a big crowd. Now this, of course, is one kind of a blind run. There is another. Contrary to selecting rough roads, the leaders map out some territory where good roads are to be found, and then they seek out some section little frequented, and spring a surprise on the club members by winding up at some delightful little village that escapes the attention of the mass of riders out every day. Novelty is what is now required to interest clubmen in runs, and all sorts of devices are resorted to to keep the interest of the members keen for road riding.

Being the writer of last month's schedule of runs, I feel like apologizing for failure in carrying them out. However, now that the rainy season is really over, I feel confident of never being held guilty again.

L. V. JULY, 1898. NO. 7.

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MEDICINAL PLANTS OF NEW JERSEY.*

BY H. H. RUSBY, M. D.

*RUBUS CANADENSIS L. RUNNING BLACKBERRY.
*RUBUS VILLOSUS AIT. HIGH BUSH BLACKBERRY.

Both these official blackberries are common and abundant throughout. I am strongly of the opinion that the bark of the root of the former cannot be collected commercially, owing to mechanical difficulties, and I should favor its deletion from the official definition.

*Geum.

Six species occur in the State, three of them in abundance. G. Rivale, or Avens Root, is rather common in the northern swamps.

*Fragaria.

Various form of the wild strawberry are both common and abundant throughout.

*Agrimonia.

A number of species occur abundantly throughout the State. The genus has recently been revised by Dr. Britton, and a number of new species described.

Sanguisorba Sanguisorba (L.) Britton. Burnet.

Occurs only in a few localities.

Rosa canina L. Dog Rose.

It was formerly believed that all our Sweet-briars were referable to Rosa Rubiginosa, but some years ago it was determined that much of that growing along the Delaware was the genuine Dog Rose of Europe.

*Heuchera Americana L. Alum Root.

* Read before the New Jersey State Pharmaceutical Association, Summit Meeting, May 18th, 1898.

Common along the Delaware, and occasional elsewhere along mountain streams.

HYDRANGEA ARBORESCENS L.

Common along the Delaware, and occasional elsewhere along mountain streams.

Drosera or Sundew.

Three species are abundant, in the south especially.

*HAMAMELIS VIRGINIANA L. WITCH HAZEL.

Very common and abundant in the north, where it is capable of yielding commercial supplies, and frequent in the south. I have encountered two distinct types of this bark in commerce, and should not be surprised to learn that two species exist.

*Liquidambar Styraciflua L. Sweet Gum.

Abundant, except in the north, where it is frequent. In this State it rarely becomes a large tree, as it does further south.

*Onagra biennis (L.) Scop. Evening Primrose.

Very common and abundant throughout, as a weed.

Eryngium aquaticum L. Water Eryngo.

It occurs at one station in Burlington County.

*Sanicula. Black Snakeroot.

The Saniculas grow commonly and abundantly in nearly all wooded districts in the northern half of the State, and frequently in the southern half also. Until recently all were supposed to belong to the two species S. Marylandica L. and S. Canadensis; but in 1895 Mr. E. P. Bicknell showed that most of that growing in this vicinity represented an undescribed species, which he named S. Gregaria.

*Cicuta maculata L. Water Hemlock.

Although not, strictly speaking, a medicinal plant, this is so powerful a physiological agent, and so frequently and fatally poisonous, that it should receive mention here as being one of the commonest plants of our northern swamps, and not infrequent in the south.

*CONIUM MACULATUM L.

This occurs occasionally, purely as an introduced plant.

*Washingtonia Claytoni (Michx.) Britton.

This occurs occasionally, purely as an introduced plant.

*Washingtonia longistylis (Torr.) Britton.

The two Sweet Cicelys, long familiar under the names Osmorhyza Brevistylis, now restored to the genus Washingtonia, are common in woods in the northern counties.

*FOENICULUM FOENICULUM (L.) KARST. FENNEL.

Occurs in various localities, purely as an escape.

*Angelica atropurpurea L. American Angelica.

This can hardly be regarded as abundant in any part of the State, but

it is not uncommon, and grows luxuriantly, showing its ready adaptability to culture here.

*Daucus Carota L. Carrot.

One of our most abundant and troublesome weeds, and capable of collection on the largest scale.

*Aralia racemosa L. Spikenard.

This much-esteemed plant grows commonly, especially in the north. In the rich, forested, trap-rock soil hereabout, it grows luxuriantly, and demonstrates perfect natural conditions.

*Aralia nudicaulis L. Wild Sarsaparilla.

Very abundant indeed in all dry woods, especially in the north.

Aralia hispida Vent. Bristly Sarsaparilla.

Occasional and scarce throughout the State.

*Panax quinquefolium L. Ginseng.

This is now one of the rarest plants of the State, though it was once rather frequent, as testified by our old people; another instance of the extermination of a useful plant. The rich soil of our rocky woodlands is admirably adapted to its cultivation, one of the most profitable of agricultural operations. An illustrated brochure on the cultivation of this plant has recently been published by our National Department of Agriculture. Plainfield is the nearest point to Summit where it has been collected.

*Cornus florida L. Flowering Dogwood.

This species, formerly official, is one of our most abundant shrubs or small trees, especially in the central and northern districts, and contributes more than any other species to the beauty of our hedges and forest borders in early May.

Five other species of Cornus, whose barks have been similarly used, are also common.

*SAMBUCUS CANADENSIS L. ELDERBERRY.

This is also very common, and in many places exceedingly abundant. Its flowers are much more extensively exported than is generally supposed, and they could be collected hereabout to good advantage. The plant is much more poisonous than is generally supposed. Its properties are well worthy of investigation.

VIBURNUM OPULUS L. CRAMP BARK.

Occurs very sparingly in several localities in the north. In purchasing Cramp Bark I have received the bark of another species, I believe V. Dentatum L., which is very common throughout.

*VIBURNUM PRUNIFOLIUM L. BLACK HAW.

This is common and abundant everywhere, except in the south, where it occurs frequently. The great variation in strength of this drug is

supposed to be due to the substitution of the bark of other species, a number of which are very abundant in the Southern States. Its collection in this vicinity would obviate all such possibility, as there is scarcely anything else which could be collected for it: only an occasional lot of V. Lentago L., which, in all probability, possesses the same properties.

*Triosteum perfoliatum L. Wild Coffee.

This is quite common in the north, especially hereabouts.

*Cephalanthus occidentalis L. Button Bush.

A very common shrub of swamps throughout the State, especially southward and near the coast. In Virginia, under the name of Wild Liquorice, a name which properly belongs to Galium Circaezans Mx., it enjoys a high domestic repute in the treatment of pectoral complaints.

*Mitchella repens L. Partridge Berry.

Very common in all dry woods.

*Vernonia Noveboracensis (L.) Willd. Iron Weed.

Very common and abundant in all open low grounds throughout the State.

*EUPATORIUM PERFOLIATUM L. THOROUGHWORT.

Exceedingly abundant in low grounds, and capable of being collected in any quantity.

The E. Purpureum, also used, is almost equally abundant.

*Solidago odora Ait. Odorous Golden Rod.

Rather frequent in the north and very common in the southern counties.

*CONYZELLA CANADENSIS (L.) RUPR. COLTS TAIL.

Very abundant indeed in fields, frequently growing so that it could be cut with the machine to the almost total exclusion of all else.

The separation of this plant from the genus Erigeron, to which it is at present referred by the Pharmacopoeia, would seem altogether commendable, in view of its very different habits and constituents.

*Anaphalis margaritacea (L.) B. & H. Pearly Everlasting.

Very common in high, dry, especially rocky fields, especially in the northern counties.

*Gnaphalium obtusifolium L. Balsam.

Even more common and abundant than the last.

*Antennaria neglecta Greene.

*Antennaria decipiens Greene.

Both these species of Ladies Tobacco, Cats Paw, Mouse-ear or Low Everlasting, are common enough in various parts of the State. Both have passed as A. Plantaginifolia (L.) Hook., but Prof. Greene has recently shown that that species does not occur in America.

*INULA HELENIUM L. ELECAMPANE.

The firm manner in which this establishes itself upon rocky hills, and

the luxuriance of its growth, clearly show its adaptability to our soil and climate.

Iva frutescens L. Marsh Elder.

Very abundant in salt marshes.

*Ambrosia artemisiaefolia L. Common Ragweed.

Perhaps our most common and troublesome weed.

*Ambrosia trifida L. Great Ragweed.

Very common and abundant, especially along the coast streams and ditches.

*Xanthium strumarium L. Clot-bur.

Xanthium spinosum L. Spiny Clot-bur.

Both the Clot-burs are common enough as coarse weeds, especially the former, which is abundant in all waste grounds and along roadsides.

*Helenium autumnale L. Sneeze Weed.

Common along streams throughout the State, especially near the coast. An alkaloid has recently been isolated from a very similar Mexican species.

*Achillea Millefolium L. Milfoil.

A very common weed throughout the State.

*Anthemis Cotula L. May Weed.

Very common indeed as a weed along roadside and in waste places.

*TANACETUM VULARE L. TANSY.

Flourishes perfectly beside roads and in waste places, where it can readily be collected of excellent quality, its leaf-development being abundant.

Artemisia vulgaris L. Mugwort.

At various points where this has been introduced it flourishes perfectly.

Tussilago Farfara L. Colts Foot.

Occurs rarely.

*Erechtites hieracifolia (L.) Raf. Fireweed.

Exceedingly abundant and common in recent clearings throughout the State.

$\left.\begin{array}{l}\text{*Senecio aureus L.}\\\text{*Senecio Balsamitae Muhl.}\\\text{*Senecio obovatus Muhl.}\end{array}\right\}$ Golden Ragwort.

These species of Senecio, long included in the one species S. aureus, occur commonly throughout the State.

*ARCTIUM LAPPA L. BURDOCK.

One of our commonest weeds.

*CICHORIUM INTYBUS L. CHICORY.

Common throughout the State, and sufficiently abundant for cultivation in many localities.

*TARAXACUM TARAXACUM (L.) KARST. DANDELION.

It is lost sight of by many pharmacists that the fresh root must be taken for the extract. Its very great abundance in all parts of the State makes this perfectly convenient.

*LOBELIA INFLATA L. INDIAN TOBACCO.

Very abundant along roadsides and in new meadows and pastures, where any required quantity can be quickly collected.

*Lobelia syphilitica L. Great Lobelia.

Very common in swampy meadows and along streams.

ARCTOSTAPHYLOS UVA-URSI (L.) SPRENG. BEARBERRY.

Rare in the northern districts, but very abundant in many localities in the sand and gravel of the pine barrens.

*GAULTHERIA PROCUMBENS L. WINTERGREEN.

Very abundant in many parts of the State; in other parts altogether wanting.

Epigaea repens L. Trailing Arbutus.

Common in most parts of the State; abundant in the south.

*Pieris Mariana (L.) B. & H. Stagger-Bush.

Although not strictly medicinal, this poisonous shrub may be mentioned as growing frequently in the north, and very abundantly in the south, especially along the coast.

*Kalmia angustifolia L. Sheep Laurel.

*Kalmia latifolia L. Mountain Laurel.

Both these laurels are abundant throughout most of the State.

*Pyrola rotundifolia L.

*Pyrola elliptica Nutt.

Both these Pyrolas grow quite commonly in dry woods of the northern half of the State, and frequently southward.

*CHIMAPHILA UMBELLATA (L.) NUTT. PIPSISSEWA.

Occurs with the last two, and is more frequent than they in the south.

Limonium Carolinianum (Walt.) Britton. Marsh Rosemary.

Very abundant at and near the seaside.

Anagallis arvensis L. Poor Man's Weather Glass.

Rather common near the coast and at other points where it can be readily introduced. It does not establish itself very strongly.

*Diospyros Virginiana L. Persimmon.

Common in the south and growing at a number of places in the middle counties.

*Fraxinus Americana L. White Ash.

Occasional in the south and very common in the middle and northern districts.

*Chionanthus Virginica L. Fringe Tree.

Occasional in the western part of the State.

*APOCYNUM. DOGBANE.

There is scarcely any other plant of the Pharmacopoeia which is so much in need of study as this. Upon the one hand, we have abundant evidence that some preparations of the drug exert an important cardiant action, while others are inert, and, upon the other, the certainty that a number of species have been badly confounded. It has long been accepted that we had but two species, A. Cannabinum L. and A. Androsaemifolium L., the former presenting a number of varieties. Recently Prof. Greene has described A Medium and A. Album as segregations from A. Cannabinum. It is very likely that both of these species are common hereabout, but time has not been allowed for determining their distribution in the State.

*ASCLEPIAS TUBEROSA L. PLEURISY ROOT.

This is another plant calling for close study. That the A. Decumbens L., which has recently been reinstated, is really a good species, I do not feel at all sure. The plant is common enough throughout the State, preferring sandy soil.

A. Syriaca L. and A. Incarnata are also very common and similarly used.

Sabbatia. American Centaury.

Five species of these plants occur in the State, mostly near the coast, and all possess properties similar to the Gentians.

*Gentiana. Gentian.

Seven Gentians occur in the State, G. Andrewsii and G. Saponaria being rather abundant and more or less used, like the official species.

*Menyanthes trifoliata L. Bog-bean.

Occurs in swamps in quite a number of localities.

SYMPHYTUM OFFICINALE L. COMFREY.

Occurs rather commonly in waste places as an escape.

Ipomoea pandurata (L.) Meyer. Man Root.

Common in the sandy soil of the southern districts, and occasionally northward.

Solanum nigrum L. Nightshade.

Solanum Carolinense L. Horse Nettle.

Both occur frequently as introduced plants.

*SOLANUM DULCAMARA L. BITTERSWEET.

Very common along streams and about the borders of ponds.

*DATURA STRAMONIUM L. STRAMONIUM.

Very abundant in all waste places. The plant is so readily collected, and the certainty of a good article is so important, that it would be well if it were oftener collected here. The frequency of serious cases of poisoning by it makes it important that it be known by every one.

HYOSCYAMUS NIGER L. HENBANE.

Occurs occasionally by accident. Does not establish itself.

*Verbascum Thapsus L. Mullein.

A very common weed, readily collected in any desired quantity in all parts of the State.

*Scrophularia Marylandica L.

*Scrophularia leperella Bicknell.

Both of these species of Figwort, until recently classed as S. Nodosa, occur abundantly in all parts of the State.

*VERONICA VIRGINICA L. Culvers.

This important plant is common in most parts of the State, especially in the rich rocky woods of the northern counties. Its habit is something like that of the Cimicifuga, and, like that, it is one of our handsomest wild flowers. A number of other species of Veronica, especially the old V. officinalis, are common and abundant throughout.

*Leptamnium Virginianum (L.) af. Beechdrops.

Very common in the northern half of the State, almost wherever beech forests occur, and occasionally southward.

*Verbena hastata L. Blue Vervain.

*Verbena urticifolia L. White Vervain.

Both species occur in the greatest abundance as tall roadside weeds.

*MENTHA PIPERITA L. PEPPERMINT.

*MENTHA SPICATA L. SPEARMINT.

Both the official mints grow very commonly, and demonstrate their capacity to do well under cultivation. It would seem that the limestone region of North Jersey was specially adapted to the cultivation of peppermint.

Various other species of Mentha, native and introduced, also occur commonly or frequently throughout the State.

*Collinsonia Canadensis L. Horse Balm.

Very common and abundant, and of luxuriant growth in the rich woods of the northern counties. Less frequent in the south.

*Lycopus Europaeus L.

*Lycopus Virginicus L.

Both of these, together with several other species of Lycopus, are widely distributed and abundant in the low grounds of the State.

*Cunila Mariana L. Dittany.

Common in dry woods, especially in the northern half of the State.

*Pycnanthemum.

Various species of this genus enjoy a high repute as aromatics among country people, under the name of Mountain-mint. They are very abundant, especially in the rocky woods of this vicinity.

(*To be Concluded*).

ESSENTIAL OILS.

The semi-annual reports of Messrs. Schimmel & Co. may fairly be said to constitute an epitome of everything of importance pertaining to essential oils which has come forward during the period covered, and we are always glad to print liberal extracts from them. Much of practical value to the pharmacist, as well as of scientific interest, will be found in the quotations which follow.

"Scientific Progress.—Fewer scientific researches have been accomplished in this domain during the last six months than usually. It would, however, be a mistaken inference to conclude that the realm of knowledge has been so far advanced as to admit a pause in the work of further research. On the contrary, many and important problems still remain to be solved; but it should be borne in mind that with the extended and deeper insight into the constitution of so highly complex organic compounds, the difficulties of further and accurate research and of correct interpretation accumulate and sometimes necessitate a discriminating retrospect upon disjointed or unclassified scientific material."

"Adulteration.—Dishonest competition, manipulating in secret, utilizing the elastic nature of essential oils, and the difficulty of discriminating between true and sophisticated products, and thus taking advantage of these uncertainties, can only be counteracted and disarmed by enlightening the public."

"Oil of Bitter Almonds.—In consideration of the fact that as yet no chemical test has been devised for ascertaining an admixture of chlorine-free benzaldehyde with true oil of bitter almonds, the latter has attained commercially the character of a strictly confidential commodity. The distiller alone is in the position to offer an asolute guarantee of the purity of his product."

"Oil of Cardamom.—We are informed that the cultivation of the wild growing, so-called long Ceylon cardamom has recently been restricted. The main portion of cardamom exported from Ceylon in 1897, amounting to 502,830 lbs., consisted of short, bleached fruits. This explains the continuous want of the former sort, which is exported to England exclusively. The last auction sales brought 3/10 per lb. The oil distilled from the long fruit is consequently rare and expensive; it is, however, preferred in the manufacture of liquors to the oil of other kinds of cardamom, for the reason that it does not possess the strong camphoric aroma."

"Cassia Oil.—The rates of the lower grades of oil have experienced a further reduction in the course of the last six months, while the best grades maintain a rather buoyant tendency. Quotations in Hongkong are about:—

85–90% of aldehyde;	very rare	$\frac{6}{3}$ per lb.;	in Germany	M.	14.50
80–85 " "	not frequently offered in	$\frac{5}{3}$ "	"	"	13 00
70–75 " "	sufficient quantity	$\frac{4}{7}$ "	"	"	11.50
60–65 " "	plenty in stock	$\frac{3}{9}$ "	"	"	9.50
50–55 " "	plenty in stock	$\frac{3}{7}$ "	"	"	9 00

This comparative list bears evidence as to how important it is for the consumer to purchase this article exclusively on the basis of its percentage of cinnamic aldehyde. The plain designation, "Cassia oil," even with the addition of "genuine" or "pure," would not exclude an oil containing only 50 to 55 per cent. of aldehyde; such an oil would not necessarily involve a sophistication, although much below a fair standard."

"Cedar Leaf Oil.—Considerable confusion prevails in American markets in regard to this oil, in consequence of the fact that several different Conifers pass under the common name "cedar," the principal ones being Juniperus virginiana (red cedar), Thuja occidentalis and Chamaecyparis sphaeroidea (both white cedars). Although in common usage, a distinction between these so-called cedars is made, the distillers of cedar oil seem to ignore, or not to be aware of such differences, using the needles indiscriminately for distillation. We succeeded in obtaining a large sample of needles from one distiller, which seemed to consist of thuja leaves only, but the oil obtained from the specimen was not pure thuja oil. It is, therefore, no wonder that a considerable variation is constantly observed in the commercial oil of cedar leaves. In August, 1894, we distilled some cedar leaf oil from the needles of Juniperus virginiana, collected fresh under our control, and noticed the difference of this oil from all the commercial oils. We have recently submitted this oil to an examination. Accordingly, true cedar leaf oil consists mainly of limonene, cadinene, some borneol and small portions of bornyl esters. True oil of cedar seems not to come into commerce, the common oil passing under this name is an indefinite distillate of miscellaneous conifer needles, including those of thuja. Red thuja oil, sometimes met with as "cedar oil," should more properly pass under the name of "thuja oil."

"Oil of Cinnamon.—The shipments of cinnamon from Ceylon, in 1897, amounted to—bark, 2,674,537 lbs.; chips, 1,067,051 lbs. The consumption of cinnamon seems to be on the increase. The cinnamon oil market is threatened by an epidemic of sophistication like that experienced with oil of bitter almonds. We are in possession of evidence that cinnamon oil surrogates are in commerce, consisting of mixtures of true oil and of artificial cinnamic aldehyde containing chlorine. In view of the fact that cinnamic aldehyde devoid of chlorine can now be had in any quantity, it will soon be used for the sophistication of natural Ceylon oil, and a con-

dition of the cinnamon oil market may set in without sure standards for control. On account of the actual tendency of the cinnamon market, any reduction in oil prices may find an excellent explanation in the apprehension just indicated."

"Cloves.—The stock in London shows a slight reduction when compared with that of last year. It consisted, however, at the end of last year of 72,810 bales, equal to 4,300,000 kilos, or about one-half of the annual production. The stocks in London used to be much smaller, but have risen up to 5,000,000 kilos during the last three years; the value of cloves, therefore, becomes more and more subject to the dictates of the London speculators."

"Cypress Oil.—The excellent action of this oil in pertussis (whooping-cough) has been further confirmed. Upon application, relief sets in after a few days, and the course of the malady remains a mild and comparatively brief one, unless incidental complications occur. The application consists in spreading a few drops of the oil upon the pillow of the patient, as also by aromatisation of the sick-chamber with the oil by means of an atomizer."

"Oil of Bergamot.—The question whether the odor of bergamot oil is due exclusively to linalyl acetate must be answered in the negative, because the odor is due to the entirety of the constituents of the oil, mainly limonene, linalool and linalyl acetate."

"Oil of Lemon.—The peels of approximately 1,200 lemons are required for the production of one kilo of oil."

"Eucalyptus Oil.—The distillers at Algeria have had to yield to the competition of Australian producers by reducing their rates accordingly. The distillates of both countries seem to have attained to their lowest possible rates. Meanwhile, the first large shipment of Portuguese oil, distilled from Eucalyptus globulus has been received. Its quality equals the very best commercial oils and bears evidence of careful and proper methods of and appliances for distillation. As far as we are informed, the cultivation of eucalyptus trees in the neighborhood of Oporto is quite extended, and the production of Portuguese oil may soon become a considerable factor in the eucalyptus oil market. This is the less encouraging to the producers of the older brands of oil, as a further increase in the consumption of eucalyptus oil is not to be expected."

"Oil of Fennel.—The point of solidification of Fennel Oil, indicating the amount of anethol, is the best criterion. Good oil should solidify at least at +3 deg."

"Linalve Oil.—The Mexican aloe wood does not contain the oil in special cellular tissue, but it is distributed through the circular strata of the parenchyma and prosenchyma of the wood, while the Cayenne wood con-

tains the oil in enlarged parenchyma passages. It contains much less essential oil than Mexican wood, a fact long observed by distillers."

"Oil of Mace.—We have introduced an oil distilled really from the arillus of the nutmeg, as is prescribed by the German pharmacopoeia. In accordance with a traditional usage, all oil of mace was hitherto distilled from rejected nuts. The true oil of mace has, of course, a higher price. Its constants, as compared with the former oil and with nutmeg oil, are:— True Mace Oil, sp. gr. 0.905 at 15°, opt. rot.+11°7′ at 17°, soluble in 2 vols. of 90% alcohol. Nutmeg Oil, 0.865 to 0.920+14° to +30°, in 3vols. of 90% alcohol.

"Oil of Orris.—In consequence of a proper adjustment of the price of Orris-root oil, and of the fact that it, jointly with Ionone, forms an excellent and persistent basis for violet and related perfumes, the use of and demand for orris oil has enormously increased, and that to the great advantage of the perfumery industry."

"Oil of Rose.—It is proved that the most prominent jobbers in Bulgaria have paid 1,000 to 1,055 Frs. per kilo for rose oil, while this is offered in Germany at M 680 to 700, with the false guarantee of being pure, unsophisticated oil. The long prevailing uncertainty in regard to the principal constituents of the fluid part of rose oil has finally been settled. It is now generally agreed to consist of the two alcohols $C_{10}H_{18}O$ and $C_{10}H_{20}O$, the former constituting 75 per cent. of the oil. It has been settled that this alcohol ($C_{10}H_{18}O$) is identical with the geraniol obtained from palmarosa oil by Jacobsen in 1870, while the alcohol $C_{10}H_{20}O$ corresponds to that obtained by Dodge in 1890 by the reduction of citronellal and called by him citronellol. In spite of these settled facts the so-called rose oil problem still remains in dispute, inasmuch as a controversy in regard to the proper names of these alcohols is still going on. Most chemists prefer to retain for the alcohol $C_{10}H_{18}O$ the name of geraniol in recognition of the priority of the discovery by Jacobsen, while Barbier and Bouveault call it lemonol, and Erdmann and Huth, recently joined by Poleck, rhodinol."

"Oil of Spearmint.—The prices of fine American Spearmint Oil have been further reduced since our last Report and are now as low as never before. At the same time the quality is an excellent one, superior to that of any other brand."

"Star-anise Oil.—Prices have somewhat declined in the course of the last six months, but the value in general is more nominal than an actual one, because the adulteration of the Chinese oil has recently reached surprising dimensions. Admixtures of as much as 40 per cent. of kerosene are common, and no pure oil will at present be shipped from China unless with the guarantee of a definite point of solidification. We specially advise

the firms in Hongkong to bear these facts in mind, otherwise the star-anise oil trade may more and more pass over to Tonkin, whence we have thus far received unobjectionable shipments of oil, having a degree of solidification up to +18°."

"Wintergreen Oil.—The rates of the American distillate seem now to have reached their bottom figures. The demand for and use of the natural oil has rather increased in the course of time, which is somewhat surprising in view of the competition by the artificial product. The cut-rate price of the latter commodity maintained by reckless competition, has deprived it of any material interest to manufacturer and jobber."

"Orange Oil from Jamaica.—A specimen of this oil does not speak in favor of its ever becoming a competitor of the Messina oil of oranges, on account of its stale and vapid odor, making the impression as if it had been obtained from rotten fruits and had been improved by the admixture of some distilled oil.

"Coumarin.—The leaves of the so-called vanilla plant, Trilisia odoratissima Cass (Liatris odoratissima, Willd.), for some time has been used with advantage for the manufacture of cumarin, specially on account of an accumulation of large stocks of these fragrant leaves in New York and Hamburg. Since the consumption of this material and the consequent rise of its price, the manufacturers have had to resort again to the synthetic method of preparation."

"Ionone.—Ionone is also much used as a violet flavor for fine confections, but its proper application requires discretion. In the perfection of such goods the United States thus far excel."

"Terpineol.—This product has attained to considerable importance in perfumery, being used as a constituent of many floral odors and as the principal basis of the lilac "extraits" proper. Although it has not been demonstrated, terpineol in all probability seems to be a natural constituent of various flowers. It remains for further studies to establish this as a fact."

"China opened" is an expression only recently in any way true. Native Chinese students of both sexes are now in different educational institutions in this and other countries. An educated Chinese lady, having received her medical degree from the Woman's Medical College of Philadelphia, has recently become the physician to a high official in the Chinese home government. How rapidly the education of native teachers in foreign institutions, the building of hospitals, the work of missionary teachers and the extension of railroads through the great interior of China will elevate the general standard of scientific medicine and practice is a question commanding attention at the present time.

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ABSTRACTS.

Chicory.— "Chicory Growing as an Addition to the Resources of the American Farmer," is made the subject of "Bulletin No. 19 of the U. S. Dept. Agric.," Division of Botany, by Maurice G. Kains. This is a pamphlet of 52 pages, illustrated by twelve cuts. The uses of the herbage as a pot-herb, a salad, and a fodder, and of the root as a vegetable, a beverage, a medicine and an adulterant, or substitute, are reviewed. The plant is figured and fully described, and copious analytical tables of composition submitted. Cultivation processes are given in detail, with tables exhibiting cost, proceeds and net profit.

Amylolytic Ferments. — In an article on this important subject, by Wyatt Wingrave, M.R.C.S., Eng. (Assistant Surgeon to the Central London Throat and Ear Hospital), in the London *Lancet*, May 7, 1898, we are informed of a personal necessity that arose in the writer's experience for a reliable starch digestant. A crucial comparative examination was therefore made of many malt extracts and of Taka-Diastase, the tests being conducted both chemically and clinically.

He summarizes briefly: 1. That Taka-Diastase is the most powerful of the starch or diastatic ferments and the most reliable since it is more rapid in its action—i. e., "it will convert a larger amount (of starch) in a given

time than will any other amylolytic ferment." 2. That Taka-Diastase seems to be less retarded in its digestive action by the presence of the organic acids (butyric, lactic, acetic), and also by tea, coffee and alcohol, than are saliva and the malt extracts. This is an important point in pyrosis. 3. That all mineral acids, hydrochloric, etc., quickly stop and permanently destroy all diastatic action if allowed sufficient time and if present in sufficient quantities. 4. That Taka-Diastase and malt diastase have, like ptyalin, no action upon cellulose (uncooked starch). All starch food should, therefore, be cooked to permit of the starch ferment assisting nature in this function.

An Adulterant of Calabar Bean.—W. B. Day reports (West. Drug.) the discovery by Prof. Hereth of a foreign seed in a lot of calabar bean which has been identified by Prof. Lloyd as the seed of Entada scandens, Benth. The seeds are described as broadly kidney-shaped, flattish, almost lenticular, about $1\frac{3}{4}$ inches in diameter and about $\frac{5}{8}$ inches thick. In the powdered drug the most noticeable difference is in the size of the starch grains, those of entada measuring from 5 to 6 microns, while those of calabar bean measure from 40 to 60 microns. Further, the cotyledons of entada do not give the salmon color produced on treating calabar bean with caustic potash. The entada beans have not been met with in this country before, it is said, as adulterant of physostigma.

Mending Platinum Vessels. — The editor of the National Druggist says he has frequently succeeded in mending small holes in platinum capsules by placing a small crystal of gold chloride over the aperture, and attaching it by melting with a gentle heat, and then turning on the flame of the oxyhydrogen blow-pipe, by which the chloride was reduced, filling the hole with a plug of pure gold. For larger holes, after cleansing the bottom around the hole, he cuts a disc of platinum foil a little larger than the aperture; with a glass rod touches the edge around the aperture with a solution of the chloride, warms gently, until the moisture has been driven off, approximates the foil over the opening, and turns on the oxhydrogen flame as before. The gold acts as a solder between the platinum surfaces, and makes the capsule as good as ever, he says, for all purposes which do not require an extreme heat.

The Treatment of Myxoedema.—It is now generally recognized that thyroid feeding is the most valuable resource in the treatment of myxoedema and cretinism. As in both of these affections there is a marked atrophy or absence of the thyroid gland, the value of thyroid therapeutics is readily explicable. While the results hitherto derived from the thyroid preparations in common use have been quite encouraging, it is probable that they will become much better when physicians will avail themselves

more generally of the active principle of the thyroid, which can now be obtained in the form of a triturate with sugar of milk under the name of iodothyrine. The advantage of using the active constituent instead of extracts is readily seen. As mentioned by Dr. Cabot *(Medical News,* Sept. 12, 1896), the dosage is exact, and it is free from some of the unpleasant toxic qualities of the dried preparations of the gland. Excellent results are reported from the use of the iodothyrine in myxoedema by Prof. Ewald and Fraenkel, of Berlin. Dr. P. Maries, of Paris *(Med. Week.)*, has recently recorded the case of a woman, aged fifty-four years, who had suffered for several years from this disease, and was treated with iodothyrine in doses of 0.3 grm., three or four times daily. Although the patient presented rather severe cardiac dyspnoea and some albuminuria, there was rapid improvement and complete recovery ensued within six weeks.

Lystol. —Lysitol is described *(Pharm. Centralh.*, XXXIX., p. 145) as a preparation resembling lysol in appearance as well as in its power to kill bacteria and spores, but as being considerably cheaper.

Guaiacol-and-Quinine Hydrochlorate.—Guaiacol-and-quinine hydrochlorate, occurring in the form of white, crystalline needles, has recently been introduced as a substitute for guaiacol *(Pharm. Centralh.*, XXXIX., p. 145). It is stated to be milder in its action than the latter.

Ichtol.—Ichtol is described as a mixture of lanolin, iodoform, glycerin, carbolic acid, oil of lavender and oil of eucalyptus. It is intended *(Pharm. Post,* XXXI., p. 94) as an application in itching of the skin.

(It is to be regretted that greater discrimination is not exercised at times in the choice of names for new remedies, preparations, etc. In the present instance, the name so nearly resembles "Ichthyol" that many will, no doubt, be misled by the resemblance). Merck's Report.

Gossypol.—L. Marchlewski *(Pharm. Centralh.*, XXXIX., p. 108) has isolated a new crystalline compound from cottonseed, which he has named "gossypol." The substance appears to possess both phenol and acid properties; but, as no characteristic derivative has as yet been obtained, no formula can be assigned it at present. From its chemical and physical behavior gossypol appears to be closely related to certain tannins; pharmacologic experiments have not thus far been made with it.

Bismutan.—Bismutan is described *(Pharm. Centralh.*, XXXIX., p. 109) as consisting of bismuth, resorcin and tannin. It occurs as a yellow, odorless, faintly-sweet powder, insoluble in water. It has been employed by Dr. Bion as an antidiarrhoeal, particularly in children. In almost every case of poor gastro-intestinal digestion the vomiting and diarrhoea ceased within twenty-four hours after beginning the administration of the remedy. Adults were given doses of from 0.5 to 1 gm. per day.

A Study of the Physiological Action of Hydrochlorate of Eucaine.—In the *Bulletin of Academy of Medicine of the Royal Belgium,* No. 4, 1897, Ver Eecke, after a full experimental study of the physiological action of hydrochlorate of eucaine, sums up the work on which he has been engaged as follows: (1) Hydrochlorate of eucaine in the frog determines successively excitations, convulsions and paralysis; the latter is of peripheral origin. The return to the normal state is accompanied by convulsions, and later by hyperexcitability. The fatal dose is 0.16 grammes per kilogramme. (2) In the warm-blooded animals hydrochlorate of eucaine primarily produces excitation, which is followed by convulsions, and finally death from asphyxia occurs. There is no paralyzant dose. The fatal dose in the guinea-pig is from 0.049 to 0.052 grammes per kilogramme. There is no cumulative action of the poison; on the contrary, the organism may accustom itself to increasing doses of the drug. Cocaine has twice the toxic action which is possessed by eucaine. (3) Hydrochlorate of eucaine acts on the heart principally by paralyzing the intracardiac motor centre; secondarily it alters the muscular fibres of the heart. (4) Hydrochlorate of eucaine lowers the blood-pressure by diminishing the peripheral resistance. (5) Hydrochlorate of eucaine directly stimulates the respiratory centre in the medulla. The paralysis of the respiratory centre in cases of fatal poisoning is not the result of the direct action of poison, but is due to asphyxia, which, in its turn, is caused by an excess of carbon monoxide in the blood. (6) Eucaine increases diuresis, accelerates nitrogenous, phosphorous and chlorous metabolism; it produces glycosuria, but only during the presence of intense convulsions. (7) Hydrochlorate of eucaine does not appear to eliminate itself by the kidneys; on the other hand, it probably undergoes a chemical decomposition in the economy. (8) Hydrochlorate of eucaine, instilled in the conjunctival sac, first produces anesthesia of the conjunctiva, and finally of the cornea, at the same time that it rapidly lowers the intraocular pressure. (9) Hydrochlorate of eucaine reduces the vitality of the red blood corpuscles, and produces fatty degeneration of the heart and of the involuntary muscles. (10) Chloral hydrate diminishes or stops the convulsions produced by eucaine. Chloralization will allow the administration of doses of eucaine which are beyond the fatal limit. (11) The antagonism between hydrochlorate of eucaine and chloral hydrate is not reciprocated.

The "R" Tuberculin.—Slawyk of Heubner's clinic *(Deut. Med. Woch.,* July, 1897) reports upon fifty injections of the new tuberculin. One child received twenty-three, another twenty-one, and the two remaining ones two injections. The smallest quantity injected was 1-4,000 milligramme, and the largest six milligrammes. Full details are given of the first two

cases. The elder child, aged $8\frac{3}{4}$ years, reacted vigorously, whereas the younger and weaker child showed no symptoms. The reaction consisted in fever, sweating, collapse, local redness (and even eventual abscess) of old scars and of the injection site. The patients did not become accustomed to the agent after increasing doses. The highest temperature occurred most often on the day of the injection, but the fever lasted sometimes for several days. The general condition was very little affected by the fever. In one case evening rises of temperature and sweating were noted. A severe collapse once followed an injection, giving rise to grave anxiety. With children great caution in the question of dose is required. Doubling the dose is not to be recommended, and not more than two milligrammes should be given. Once a fistulous opening appeared in a scar in the neck leading down to a tuberculous gland, but the tuberculous tissue was not discharged through it. No certain conclusions can be drawn as to the value of this tuberculin, as the time is as yet too short. In the second case an improvement in the condition of the lungs was observed, and in the first case the body weight increased, the glands became smaller and the very large spleen diminished in size. The injections were discontinued in the other two cases for independent reasons.

Wörner *(ibid.)* has treated eight cases, including four of lupus, one of scrofuloderma with pelvic abscess, and three of early phthisis. In one case of lupus considerable improvement was noted. Two other cases, which had been scraped shortly before the tuberculin treatment, showed no recurrence. In the case of scrofuloderma rapid cleaning and even healing of long-standing ulcers took place. Little effect was noted in the cases of phthisis. The author is encouraged to a further trial of this remedy in small doses.

Seeligmann *(ibid.)* reports a case of tuberculosis of the skin and generative organs which was improved by the use of tuberculin.

Experimental Eclampsia.—Van de Velde, says the *British Medical Journal*, seeks to give the auto-intoxication theory of eclampsia an experimental basis. He began by comparing the case with which the injection of human urine induces convulsions in pregnant and non-pregnant rabbits, finding that the average dose required is in the former case 9 c. cm. per kilog. of body weight; in the latter, 20 c. cm. per kilog. In only one out of 37 pregnant animals experimented upon was there any difficulty in evoking convulsions. The causes of this increased susceptibility may be two in number—the presence of a greater proportion of the toxins producing convulsions in the blood of pregnant animals, or a greater vulnerability of their nerve centres to these toxins. Now the author finds that if the blood of a gravid and non-gravid animal be injected at different

times into the same rabbit, 18 c. cm. per kilog. of the former induce eclampsia, as against 25 c. cm. per kilog. of the latter. If urine be substituted for blood, the figures are 18 and 30 c. cm. per kilog. The author concludes from these experiments that pregnancy leads to the formation in the female organism of substances whose principal action is the causation of convulsions, that these substances are normally eliminated by the urine, and that they circulate in the blood to a greater extent in pregnant than in normal animals, indicating in the former an excess of production over excretion. He further finds evidence of the increased susceptibility of the nerve centres during pregnancy, in that for some days after delivery the animal is more easily convulsed by the injection of blood or urine than the normal, although its own urine is no longer abnormally toxic. Van de Velde hence argues out the whole question of eclampsia, finally accepting Bouchard's views as to its cause being auto-intoxication by the accumulation in the blood of the "toxins of pregnancy."

Isocreatinine.—J. E. Thesen *(Pharm. Ztg.,* XLIII., p. 88) has given the name "Isocreatinine" to a newly obtained nitrogenous compound isolated from the meat of fish. It differs in many respects from creatinine, described by Liebig. It is yellow, three times more soluble than the latter, and yields an easily soluble picrate. Its metallic salts behave like those of creatinine, giving also the same reactions, although more slowly. It is not altered by boiling with water, but on treatment with potassium permanganate it yields considerable ammonia, but no methyl-guanidine, whereas creatinine does.

New Ferment from the Tartrates.—"Bacillus Tartricus".—L. Grimbert and L. Ficquet *(Chem. News,* Number 1,997, p. 106) have made use of an anaerobic fermentation of calcium tartrate, induced by means of a few drops of a vegetable juice, incubated at 35 degrees C. as the starting point of research, and, after a number of cultivations, the authors were enabled to isolate a new bacillus, to which they have given the name Bacillus tartricus. It is a small bacillus, about 1 to 2 u. in length, with considerable motile power; it gives no indol reaction in a peptone solution; it coagulates milk about the eighth day, and transforms nitrates into nitrites. Bacillus tartricus is an active ferment of calcium tartrate, which it attacks indifferently in aerobic or anaerobic cultures, but shows a preference for aerobic life.

Alumni, College and Class Notes.

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N. Y. C. P. C. C.

At the annual meeting held on June 8th the following officials were elected: Pres., Frank N. Pond; Vice-Pres., Jacob S. Stage; Sec'y.-Treas., Ludwig G. B. Erb; Capt., Nelson S. Kirk; Lieut., Chas. H. Bjorkwall; Color Bearer, O. W. Frankfurter.

The medals were "all right"; they made the boys hustle, much to the delight of the spectators, who "got their money's worth." Stage won the first silver, Kirk the gold, and Dacker the second silver.

The Outing clearly demonstrated the abilities of our Club in managing athletic events. Too much credit cannot be given Capt. Erb and Pres. Pond for their untiring efforts in securing prizes.

Wednesday afternoon runs to Coney Island seem to be the most popular, four having been held this season with large attendance in each case.

Two prominent Club men and a lady are congratulating themselves upon their escape from the clutches of the law brought about by an over zealous officer, who sought gore at their expense, only to be chagrined and reprimanded by a gentleman of higher authority.

Upon the initiation of our Scorching Club members will shortly be officially notified of a Sunday run to Long Island, so join the Club and see what a good time we can give you.

SCORCHER.

The Outing Committee takes pleasure in thanking their many friends for courtesies extended in connection with the successful event, particularly the following named individuals and firms: Geo. W. D. Crittenton, Chas. S. Erb, Gus Strassburger, Gerber, Mendelwitz, McKesson & Robbins, Sharpe & Dohme, Smith & Darling, Lehn & Fink, W. H. Warner & Co., Fries Bros.,

Nelson Baker & Co., Meidlinger Bros., Kays Kold Kure Co., Colgate & Co. Chelsea Mf'g. Co., John Maris & Co., Searles & Shereth Co. (Violets), Moxie Nerve Food Co.

'98 NOTES.

U. S. R. S. Vermont, New York Navy Yard, May 2, 1898.

Well may the old class of '98 be proud of the material of which she was composed. To be sure some of the members did not perhaps during the last year exert their energies as much as they should have in the proper channels, but when the news came from Washington that Uncle Sam was in need of apothecaries, almost as a unit the class went to the front, and offered its services. Of the many who offered eighteen have already sworn to uphold the Star Spangled Banner, and many more are anxiously awaiting permission to do so. Even among our sister members has the spark of patriotism been kindled, and two now have their applications in, only waiting for permission to go to the front as nurses.

Our sister class of '99 is not without representatives, as the brave Pompelly and Winters are now away at sea perhaps fighting the hated Spaniards. Many of our members have been disappointed, and could not enlist, because of physical inability to pass the examination.

We are practically isolated here, cut off from the outside world, and yet thus far our duties have been far from arduous. During the day we are employed around the ship, endeavoring to appear busy. Breakfast is from 6.30 to 7, dinner from 11 to 12, and supper from 4.30 to 5.30; at 7 P. M. the bugle sounds "hammocks," and then the boys hustle to get their swinging beds ready for the night. At sundown the bugle sounds, and as we respectfully salute, "Old Glory" is hauled down for the night. From 7.30 to 8.30 is general recreation time, and the boys amuse themselves either at cards, at the piano on the upper deck, or on the spar deck watching the sailors in their jolly fistic encounters. These contests among the sailors are conducted throughout in a most orderly manner, and good will seems to prevail. The American sailor, as we have seen him aboard the Vermont, proves himself to be a robust, good-natured and patriotic son of the sea. At 9 P. M. the salute is fired, "taps" sound and in a few moments we are fast asleep, not to wake until the salute and "Reveille" sound at 5 A. M. Thus you see the boys are very regular in their habits, and by the time the sore arms (the result of vaccination) have worn off there will be few if any who will not be found improved mentally and physically by the life in this region, remote from the gay Tenderloin.

The thanks of all the boys are due to our attentive sisters, Misses Noyes and Aschenbach who, were they so permitted, would be over to see us every day, and never yet have they forgotten to bring a stock of choice dainties with them. But alas! of late Uncle Sam has become very strict, and we now see them but once a week.

The first of the boys to leave was Winters, '99, on the "Solace"; next went Pompelly, '99, on the "Sterling"; then followed Siegel on the "New Orleans," and to-day we lost our dearly beloveed Vice-President Mills, who left for Philadelphia to ship on the "Justin." Our old friend Hilderbrandt has become famous by the discovery of a new species—"Hammocaciae Bitehardiaceae

Hilderbranti," synonym—"Hammock Bug." You have all, of course, read how our little friend Richards covered himself and the class with glory at Commencement. Unfortunately we were not all permitted to sit on the stage at Carnegie that evening, but those of us who were not were just as proud of our Valedictorian as though we had not been relegated to the ranks of the "Class of '99."

Our treasurer Alpers is here, and helps while away the hours with his discourses on "Religion and the Hereafter." That old hat of "Eikies," which afforded the class so much amusement, has been adorned with the signatures of the enlisted '98 men, and suitably decorated with the national colors, and is to be presented to one of the young lady members of the class. Our colony is composed at present of the following: Richards, Piskorski, Fraser, Vorisek, Alpers, Patton, A. F. Eberhardt, Wild Beckary, Jorgensen, Gellert, Hilderbrandt, Seufert and Eichwort. We have some camera "fiends" in the crowd, and no doubt some very interesting pictures will result.

And now did space but permit the menu, table manners and many other peculiar customs of the U. S. Navy could be told of. The life generally is to us all a decided novelty, but thus far there is not one who regrets having taken the step.

And now once more three cheers for the class of '98, and when the war is over, may the boys be as successful in private life as they were in the service of their country.

EICHWORT.

'99 NOTES.

Class of '99 boys seem to be working very hard; that accounts for lack of news. Very few students of our class were present at the N. Y. C. P. Excursion, June 8th. These few had the pleasure of meeting our teachers, Prof. Diekman and Dr. H. B. Ferguson.

By the way, Mis Leroy and family were greatly interested in the games and especially at the prizes that were given out at the N. Y. C. P. Excursion.

One of our trustworthy students is among the beautiful trees and flowers of Ulster Park studying anatomy.

C. F. EHLEN, Reporter of Class '99.

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The Journal of Pharmacology

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CONTENTS.

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The

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VOL. V. AUGUST, 1898. No. 8.

A Contribution to the Pharmacology of Grindelia Robusta.*

BY JOHN GLASSFORD, PH.G., PHAR.D.

[Contribution from the Laboratories of the College of Pharmacy of the City of New York.]

I.—BOTANY AND HISTOLOGY.

THE genus *Grindelia*, named after Professor Grindel, a Russian botanist, is a member of the natural order Compositæ. It comprises coarse, perennial, or biennial herbs. Gray described twelve species, two of which *G. robusta* and *G. squarrosa*, are official in the U. S. Pharmacopeæ under the title of *Grindelia*.

Grindelia robusta Nuttall, also known as Hardy Grindelia, Wild Sunflower, Gum Plant, Yellow Tar Weed, is found in salt marshes along the Pacific coast, in some localities very abundantly. Dr. H. P. Gibbons, of Alameda, Cal., who first brought the drug to notice describes it as follows:

"It is a robust species, from ½ to 3 feet high, glabrous, suffruticose, with numerous stems from creeping roots, loosely corymbose, branched above; leaves from ½ to 2 inches broad and 1½ to 5 inches long, somewhat oblong, spatulate, clasping, mostly obtuse, serrate, mucronate; involucre somewhat leafly at the base. The heads are from ½ to 3 inches in diameter. The disk is at first filled with a white resinous sperm or varnish secreted by the involucre which covers the rays and florets as they expand. The pappus consists of from two to four bristles. At about the middle of April or the first of May (the time when the flowers begin to force open the involucre) a white resinous substance begins to exude

* Submitted as a Competitive Thesis for the Faculty Prize, Post-Graduate Class, 1898.

from glands which cover the scales. This resin rarely, if ever, is found in quantity on the branchlets, although there is always sufficient secreted by the stem and leaves to impart a glutinous property perceptible to the touch. The resinous secretion changes to a brown color later in the season and covers the heads like a thick varnish. The proper time to gather the plant is when the seeds are perfected."—(Transactions of the Medical Society of the State of California, 1874, pp. 116–123.)

To this might be added that the drug, as it reaches our eastern markets, seldom includes leaves over three inches in length and contains an undue proportion of stems which vary from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter, are of a pale yellow or brown color and smooth but for the slight longitudinal wrinkles. The odor of *Grindelia* is strongly aromatic and quite characteristic. The taste is at first aromatic, recalling that of thyme; later it becomes bitter and lastly persistently acrid, producing at first a stinging and then a numbing sensation on the tongue similar to that produced by a trace of aconite.

The drug is difficult to powder on account of the tendency of the soft resin to clog up the teeth of the mill, especially when it becomes warm.

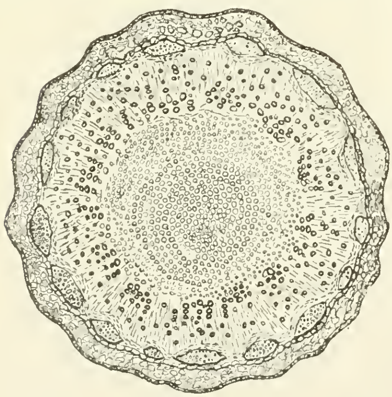

Fig. 1.

The microscopical characters of *Grindelia* are numerous. Although the official definition includes only the leaves and flowering tops, the commercial drug contains not a little stem, which renders the consideration of that portion of the plant necessary.

A cross-section of the stem presents the general appearance of Fig. 1. The center of the section is seen to be composed of a pith of delicate thin-walled, large-celled parenchyma. This comprises about one half of the entire diameter. Surrounding this pith are the fibro-vascular bundles, eight to sixteen in number; a portion of one of these is shown enlarged in Fig. 2. They are composed of radiating rows of wood cells, with vessels and tracheids interspersed, separated by a cambium layer from the dense elliptical masses of bast fibers which produce the slight longitudinal elevations mentioned above. These bast fibers are surrounded by a thin layer of parenchyma enclosed by an epidermis.

In the larger section this epidermis is seen to be composed of rectangular cells somewhat thickened on the outer wall. The layer of parenchyma immediately beneath (from three to seven cells in width) is composed of thin-walled cells very irregular both in size and shape with the

exception of a single layer of cells adjacent to the phloem groups which are noticeably larger than the others and of a uniform rectangular shape.

The phloem groups within are composed of thick-walled bast fibers of a brownish-yellow color and angular outline. They are very compact, forming a firm casing for a stem which is otherwise rather weak. The sieve-tubes, seen more distinctly in the longitudinal section, Fig. 3, are few. They are of the usual type, and are much larger than the bast fibers. The inner portions of the phloem groups gradually merge into the cambium layer, which is about three cells in width and of the usual oblong thin-walled type.

The xylem, or woody portion of the fibro-vascular bundle next within the cambium layer, is composed of rather thick-walled tracheids, rectangular in outline with small intercellular spaces, and becoming more irregular toward the center. Interspersed among these are the larger ducts, fewer near the cambium but becoming more numerous toward the center. They are arranged in radial rows of from four to eight, decreasing in size toward the center.

The medullary rays are very indistinct, being marked merely by the slight radial elongation of their cells.

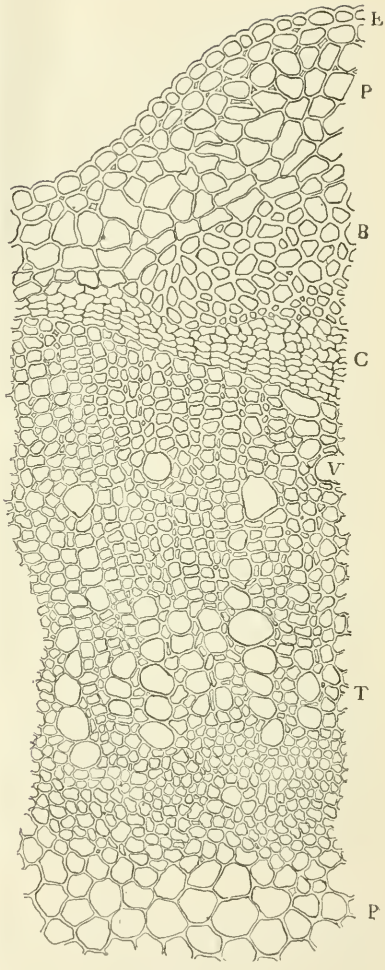

FIG. 2.

The central parenchyma is composed of the usual large, round, thin-walled cells, with large intercellular spaces.

The longitudinal section shown in Fig. 3 is perhaps of more importance than the cross-section, since it shows the parts of the stem as they would appear in a powder of the drug. The cells of the epidermis are much elongated, those of the outer parenchyma but slightly so. The bast-fibers within are in a compact, confused mass, their lumens being distinguishable only with difficulty. The cambium layer, owing to its delicacy, is difficult to preserve in a perfect condition. The usual brick-shaped central cells merge into the bast fibers on the outer side and into the ducts and tracheids on the inner side.

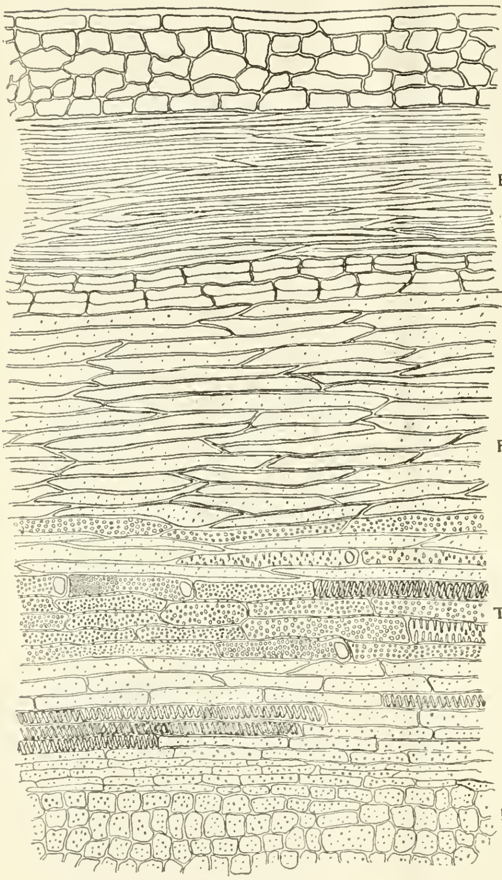

FIG. 3.

The xylem is seen to be principally composed of distinctly marked libriform fibers. These markings are the small, round or slit-shaped pores, which are distributed throughout the length of the fiber. The tracheids are distinguished by their larger diameter and thinner walls. Their markings are in part similar to those of the wood fibers, but more pronounced oval pores are common.

The ducts are of two kinds, the reticulated and spiral. The former are distributed throughout the entire woody portion of the bundle. They are from two to four times the diameter of the wood fibers. The irregular, angular pores are so numerous as to leave merely a net of the cell wall. The spiral ducts occupy exclusively the innermost portion of the xylem. Both single and double spirals are present. The parenchyma is now reached. Its outermost cells are seen to be long and narrow, with many pores. The inner cells gradually become shorter and broader until at the center ; the longest are not over twice as long as broad. They are far more irregular than is apparent on cross-sections, and many cells are seen with a diameter greater than their length.

Fig. 4 represents the appearance of the powder. In addition to the elements of the stem above described, it contains the elements of the leaf and flower.

The following may be defined :

From the stem :

(1) Bast fibers ;

(2) Ducts ;

(3) Wood fibers and tracheids;
(4) Parenchyma.

From the leaf:
(5) Leaf epidermis with stomata;
(6) Resin glands.

From the flower:
(7) Pollen grain;
(8) Flower parenchyma;
(9) Sclerenchymatic tissue from seed;
(10) Fat globules.

From all parts:
(11) Fragments of resin.

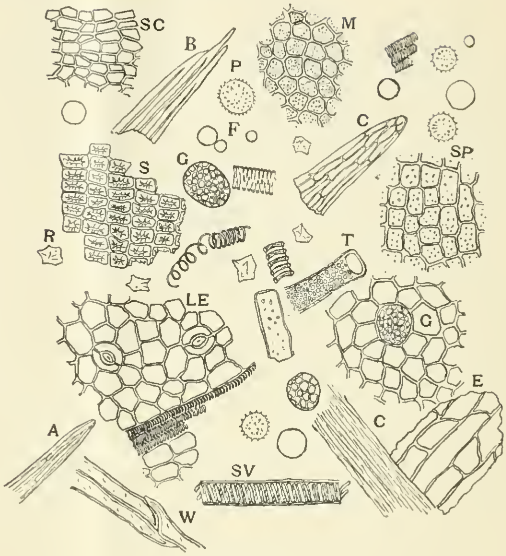

FIG. 4.

The stem elements have already been sufficiently described. The leaf epidermis consists of rounded cells rather irregular in size and shape. There is nothing characteristic about them. The stomata are very numerous. They measure about 18 microns in width and about 28 microns in length.

The resin glands are round to elliptical in shape, and are about 24 microns in diameter. They are composed of many small, angular cells, regular at the periphery, but becoming irregular toward the center.

The pollen grains are perhaps the most characteristic element of the powder. They are circular or elliptical in outline, of a diameter of from 18 to 25 microns, and yellow in color. Their surface is beset with numerous short, projecting spines.

The flower parenchyma is very frail and transparent, here and there showing a delicate fibro-vascular bundle.

The glands from the scales of the involucre are very abundant. They are of the same appearance as those of the leaf above described.

The sclerenchymatic tissue forming the outer coat of the achenes is easily recognized. It is composed of small, reddish-brown cells, arranged in regular rows.

The fat globules are colorless, spherical masses, varying in diameter from 6 to 15.5 microns or more. They come from the inner portions of the achene, and are only to be seen in the very finely powdered drug.

The particles of resin seen here and there in the powder are irregular in shape, yellow in color, and highly refractile.—MERCK'S *Report.*

(*To be Continued.*)

Medicated Gauzes.

A. Boric Acid Gauze.—Dissolve 40 gm. boric acid in 100 cc. boiling water (distilled). With this 10 m. of gauze, 0.7 m. wide, are thoroughly impregnated by continued kneading until absorbed. The gauze must be free from all fatty matter, and when impregnated is spread on plates and dried at about 25°C. One meter will contain 4 gm. boric acid, which is equal to about 10% by weight.

B. Carbolated Gauze.—Prepare a mixture of the following: 30 gm. carbolic acid, 900 cc. benzine (S/G. 0.700), 100 cc. ether and 15 cc. paraffine oil. With this impregnate 10 m. gauze, same as before. Dry and pack in parchment or wax paper. In like manner, with addition of 4 gm. resin, medicated gauzes of salicylic acid, salol, naphthol, iodol, resorcin, picric acid, and corrosive sublimate, are prepared.

C. Dermatol Gauze.—The usual quantity of gauze, 10 m.–0.7 m. wide, is cut into a number of pieces, each of which must be impregnated by itself. This becomes necessary because dermatol is not soluble in the impregnating medium. This is made as follows: Mix 50 gm. dermatol with 900 cc. benzine (S/G. 0.700), ether 100 cc., paraffine oil 15 cc. and 5 gm. resin. The same procedure can be employed in case of airol, sub-nitrate and salicylate of bismuth. Each meter contains 5 gm. of medicinal substance, equal to about 20% by weight.

D. Iodoform Gauze.—27.5 gm. iodoform, 400 cc. benzine (S/G. 0.700), 600 cc. ether, 10 cc. paraffine oil and 5 gm. resin are mixed. This mixture is used to impregnate 10 m.–0.7 m. wide gauze in the aforesaid manner. 15–20 drops ammonia water may be added; this serves to preserve color of gauze. One meter contains 2.5 gm. = 10% by weight of iodoform.

G. C. D.

Soluble Metallic Gold.

Zsigmondi recently succeeded in producing solutions of metallic gold; these in color resemble ruby-glass and are obtained by treating faintly alkaline and very dilute solutions of gold chloride with formaldehyde. The product so obtained is concentrated by dialysis, the gold remaining in solution. Its colloidal nature in this condition, permits the removal in such manner of nearly all the salts present. Gold would, therefore, seem to share with many other metals the property of yielding colloidal solutions when in a state of fine subdivision. Such subdivision must be made under water, formaldehyde acting only as a reducing agent.

If the red solution is treated with sodium chloride, or with dilute acids, a blue color is produced, and it is found that the gold has aggregated into larger particles. Addition of more salt, finally causes a separation of gold

in the form of a powder. Electrolysis of the solution causes a deposit of gold as a black powder, at the positive pole, which after drying assumes a metallic lustre.

If the original ruby-colored solution is exposed to the atmosphere, certain moulds develop rapidly, and these, strangely, have the property of appropriating gold from the solution. This property in some cases is so highly developed that the solution is entirely decolorized. The mycelium of such moulds assumes a dark red and at times even a black color. If these moulds are allowed to dry on a glass surface, a spot possessing the lustre of gold is produced, which under the magnifier appears like a network. If solutions of colloidal tin and colloidal gold are mixed, and dilute acids are added, precipitation results. The gold in this instance retains its fine state of subdivision and consequently its red color, and in this condition is intimately mixed with the tin. This precipitate seems to be identical with the substance known as the purple of Cassius. The experiment thus made seems to definitely settle the old question of the composition of this golden purple.

G. C. D.

Soluble Mercury.

Lottermoser (*Phar. Zeitung*, 13, p. 519), reports that he has been successful in his attempt to obtain colloidal mercury, corresponding in character to like modifications of silver and gold recently made. His method of procedure was as follows: Into a very dilute solution of stannous nitrate is poured, very slowly and under constant stirring, a solution of mercurous nitrate, also very dilute. Both solutions are to have a faint acid reaction, only enough free nitric acid being present to prevent the formation of sub-salts. It was found that the tin salt must be used in excess, otherwise the colloidal mercury soon changes. The dark brown solution resulting from above operation is treated with a concentrated solution of ammonium citrate, causing a separation of colloidal mercury, which becomes apparent by a change in color to black, and the deposition of a very fine black precipitate. The mixture now is kept cool and ammonia water added until all free acid is neutralized. The supernatant liquid is removed by decantation, and the precipitate first allowed to drain on a porous plate and later dried over sulphuric acid in a vacuum exsiccator. The resulting masses have a metallic lustre, and dissolve in water, forming a dark brown solution. Mercuric nitrate may be employed in place of the mercurous salt; in this case, however, it becomes necessary to use a greater excess of stannous nitrate. The author also states that mercuric acetate may be employed, but that mercurous acetate yields negative results. The colloidal mercury so obtained always contains a trace of tin, which cannot be removed without altering the product. G. C. D.

New Remedies.

Eugallol, Pyrogallol mono-acetate.—This is a brown yellow syrupy body, and is very soluble in water and acetone. It is found on the market in form of a 33% acetone solution, and in this form is employed as an external application in cases of psoriasis, coating the parts to which it is applied with a varnish-like film.

Lenigallol, Pyrogallol tri-acetate.—This derivative of pyrogallol, unlike its mother substance, does not exhibit any poisonous symptoms when applied to the skin, even in very large doses (lenigallol, lanolin *aa* 10.0 gm). It occurs as a white powder, insoluble in water, and is decomposed by alkalies. It can be employed in ointment form in cases of acute and subacute eczema. Clothing is not stained by it.

Saligallol, Pyrogallol di-salicylate.—Occurs in forms of a resin-like body, very tough, and soluble in 2 parts of acetone and 15 parts of chloroform. It may be employed in place of lenigallol. "Solutio Saligolli" is a 66 % solution of the substance in acetone.

Eunol α and β.—Are combinations obtained by interaction between maphtolen and eucalytolen. Both are very bitter, insoluble in water, but very soluble in alcohol, ether, chloroform and olive oil. They find employment in surgical and dermatological practice.

Galloformin.—This compound is obtained by action of hexa-methylentetramin on gallic acid. It forms very hard, highly refractive crystals, which are employed in surgical and medical practice.

Guacamphol (camphoric acid ester of guaiacol).—Is a valuable remedy to combat night sweats of phthisis as well as the form of diarrhœa which accompanies the disease. It crystallizes in shape of white needles, which are devoid of odor and taste.

A New Reaction to Distinguish Guaiacol from Creosote.—One drop of a very dilute solution of formal (1% formaldehyde) is added to one drop of an aqueous solution of guaiacol, contained in a porcelain capsule. To this mixture is added 1 cc. concentrated sulphuric acid, drop by drop, by means of a pipette. As soon as the liquids come in contact, the lower portion assumes a bright violet color, which gradually imparts itself to the entire body of liquid. A solution of guaiacol alone with sulphuric acid turns green. Creosote, when treated with solution of formal and sulphuric acid, also yields a violet color, with a decided crimson tint, however. Upon adding the acid a flocculent precipitate also separates, the flocculi having a carmine color. In the case of guaiacol no such flocculi are seen, the mixture remaining perfectly clear. If acetaldehyde is employed the color produced in case of creosote is decidedly carmine without a trace of violet. G. C. D.

Some New Quinine Salts.—Quinine glycerophosphate ($C_3H_7O_3PO_3$: $[C_{20}H_{24}N_2O_2]_2$) is a white powder, soluble in hot water and in alcohol, containing 68 per cent. of quinine. The neutral salt is hygroscopic and is, therefore, generally replaced by the permanent basic salt. Both are employed as tonics.

Quinine phospho-muriate forms colorless crystals, soluble in 2 p. of water and containing 50 per cent. of alkaloid. It is recommended in obstinate cases of malaria and nervous headaches, as a substitute for quinine sulphate, but on account of its lower alkaloidal strength must be given in larger doses. [Pharm. Post, 1898, p. 131.] *R. F.*

Cocaine Hydroidate.—This cocaine salt ($C_{17}H_{21}NO_4HI$) is recommended as a substitute for cocaine hydrochlorate in dental surgery for accomplishing electro-anæsthesia (kataphoresis). This comparatively recent therapy consists in introducing local anæsthetics into the tissues by means of the electric current, without injury to the tissues. Kataphoresis obtained with guaiacol-cocaine in 20 per cent. solution and the application of a current of 0.2–4. milli-ampères for seven minutes caused complete anæsthesia lasting for 15 minutes. The patients remain perfectly conscious and do not feel the current nor the slightest pain during the operation (extraction of a tooth, etc.). [Ph. Post, 1898, p. 131.] *R. F.*

Acidity of Urine.—P. A. Lamanna considers the acidity of the urine as a means to ascertain the acidity, hypoacidity or hyperacidity of the juices of the body. The acidity of the urine is ascertained by supersaturation with $\frac{1}{100}$N.—KOH and back titration using phenolphthaleine as indicator. The normal urine of 24 hours contains acid :

Calculated as	H_3PO_4	g. 1	—1.2 p. c.
"	" HCl	g. 1.1	—1.35 " "
"	" $C_2H_2O_4$	g. 1.9	—2.33 " "
"	" H_2SO_4	g. 1.47	—1.81 " "

[Chem. Centrbl. 69, I, p. 793.]

Iodothymoform.—Is obtained by iodizing thymoform, and occurs as a yellow powder, rich in iodine and practically odorless. It is very soluble in alcohol and ether, and melts at about 150°C., thus permitting gauzes impregnated with it to be thoroughly sterilized.

Lycoctonin.—This is an alkaloid obtained from Aconitum Lycoctinum, Marchetti reports that it is a weak heart poison. In doses of 75 cg. per kilo of body weight it proved fatal in cases of cold blooded animals ; in warm blooded animals much larger doses are required. On the nervous system it exerts a paralytic action. Its color is yellowish white, and it is with difficulty soluble in water, but more readily so if dilute acetic or tartartic acids are present.

G C. D.

The Journal of Pharmacology.

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Editorial.

This issue may well be looked upon as one pertaining almost entirely to the all interesting topic, "Our Boys in the Navy." I have in every instance shown preference to any news pertaining to this subject.

Long before Commencement and when a call came from Washington that apothecaries were needed, and before any living soul knew for final that certain members of the class of '98 had passed their examinations successfully or not, you could see these same young men making ardent enquiries as to where to report. The first call took eleven members to the Navy Yard, Brooklyn, to pass their physical and professional examinations, and in each case they stood the test. So it continued until, I am proud to say that, about twenty-six were accepted from the Class of '98. It is impossible for me to give a complete list, but in another column you can see the names of a greater part of the delegation. I am sorry that I am unable to acknowledge the names of the balance, but at this date a full list has not been obtained from the Government. Many of them have seen the hardest of hardships and only a few have been relegated to lighter duties. In every case they have shown their metal and have received worthy praise from their superior officers, and the daily papers in more than one instance have noted the above facts.

The *Herald* (N. Y.) commented upon the discovery (?) of an "extremely

pungent substance said to be so intense that its fumes would permeate the atmosphere for a distance of 100 yards, thereby acting upon the enemy like a ton of sharprel let loose at once." All this was put down to the "honor" of a Spanish apothecary. The *Herald* says: "The people of the U. S. rely upon the graduates of the N. Y. College of Pharmacy, lately enlisted, to discover an antidote for this substance." It is acknowledgment, I say!

Now that our fleet is back we expect to see the boys soon and ever will they be welcome to the realms of the old College. You have done nobly, all that you could, your share of praise is not little, your service was needed, you answered and it will make the standing of the once miserable apothecary all the easier to elevate. That is what you have done and you have done it well. "Actions speak louder than words."

It is with great pleasure that I desire to announce that beginning with the next issue, and through the kindness of Professor George C. Diekman, there will appear the first of a series of "Short and Handy Tests for Urine." This will be greeted by all as a most desirable step toward giving pharmacists a good idea of what can be done in every pharmacy should they be so inclined. Why not take this opportunity of obtaining a neatly tubated schudule of tests without the trouble of looking up each one individually. Our readers should not take for granted they can can make use of this for all time, but once you get interested in such an important branch of trade it will be easy matter to follow it up more thoroughly. Prepare a file at once and save it. It's worth a years subscription alone.

In just one more month the halls of the College will be resounding with the "chatter and chattle" of the "new Junior" and his senior, "the" Senior.

It will seem like old times again and once fairly started the "new" Junior will become one of us, that feeling of "where am I to go?" will be dismissed and "the" Senior will be not the same as he was when "a" Junior, but a "hard working" Senior. It's so! Many of us have been in the same boat, but we see differently as time passes by that a Junior works hard, but "the" Senior works harder.

I must mention, with special notice in this department, the sad death of "Apothecary" Adolph Dalbon, at the Brooklyn Navy Yard. A full account of which will be found in another column.

Alumni, College and Class Notes.

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Obituary.

Adolph Dalbon, class of '98, C. P. C. N. Y., died on May 30, 1898, in the Marine Hospital, Brooklyn, N. Y., the cause of his death being pneumonia resulting from a severe cold contracted during rainy weather, on board the U. S. Receiving Ship "Vermont," where he was daily awaiting an assignment to a U. S. ship, he having been one of the first to enlist as a naval apothecary, when the United States declared war against Spain. Many words could be written in sounding the praises of Adolph Dalbon, but to those who knew him, and who read this obituary, it will be sufficient to say that he was a good student, stood well in his class when he graduated, and just when his professional career was opening before him he answered his country's call with the hope, that he would be sent to the front as soon as possible, but, as above written, he died before that hope could be realized. Surely in this case we may take "the will for the deed" and honor the memory of a man who died, indirectly, at least, in the service of his adopted country. He was born in Angsberg, Bavaria, on December 12, 1866, and was, therefore, in the thirty-second year of his age. He was unmarried, his surviving relatives being his father and two sisters.

Alumni certificates are now ready for delivery. If you have not yet received yours notify the Treasurer, Charles S. Erb, 121 Amsterdam avenue, New York City.

The Secretary would like to get the correct address of the following members. Please send by mail :

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Robert G. Weyh,
Alfred W. Wiener.

Alumni Notes.

"The boys in the Navy"—wait until they get back. The Alumni ought to give them as good a reception as will permit. We are proud of them and hope they will always prosper. See some of the letters printed in this issue and you can imagine what they have done—apothecaries are just as much needed and just as useful as soldiers. It takes all together to do the good work that has been accomplished in Cuba, Porto Rico and the Philippines.

Owing to the fact that the stenographer to the reporter of "Alumni Notes" is on her vacation a full account of the outing has failed to appear. The editor does not wish to mention names but will say that our readers will be pleased to know that it will appear in the May, 1899, issue. *Accusare nemo se debet.*

"And 'Dewey' is his name"—and he belongs to Brother Erb. He is a fine English "sitter" and I wonder why our friend did not got a "jumper" while he was at it. "Sitter" should never be associated with the name of "Erb" especially when it takes only 53 incandescent lamps to flash it.

The following is copied from the paper which I acknowledge below. Social events: A certain young pharmacist (whose name I reserve for fear of the S. P. C. C., New York) has been in our midst for the past few months. He labors hard—so hard that when the daily routine of work stares him in the face he longs for that shady spot near a (the) "brookside cottage." Cupid had been met and while they sat munching radishes one day the thought came to him that it was better to toil steadily and regularly than to make up the "time off" he owed his fellow workers. He did, too! How about Wilhelmina? Oh, she sleeps while he toils. Some day it is reported they intend to walk down to *the* brook.—*Ich kann ihr ende sehen!* [Ed. with apologies to the *West End Bugler.*]

The Alumni was well represented at the Annual Convention of the New York State Pharmaceutical Association, held at Rochester, N. Y., June 28, 29, 30 and July 1. Drs. Diekman and Gies made worthy delegates. It might be recalled that one of our graduates was elected President for the ensuing year: Dr. William Muir, of Brooklyn, New York. Among others I saw the following members of the College and Alumni: Professor Chas. W. Parsons, Mr. Oscar Goldman, Mr. Felix Hirseman, Mr. Chas. B. Sears, New York, Dr. Frederick P. Tuthill, Brooklyn, Dr. Gordon L. Hager, Rome, New York, Mr. King, Rochester, New York, H. B. Ferguson, New York.

I have heard so much about getting class pictures for the alumni room. Where are they? '94 and '95 seem to be represented, but the others are still wanting.

Gustav Brandus, class of '89, formerly with Walter S. Rockey & Co., 8th avenue and 35th street, has just returned from Europe. He accompanied his invalid mother to Carlsbad, Germany, and incidentally a trip through Holland.

(Signed) "RIDE SE SAPIS."

'92 Notes.

Fred. Borggreve has resigned his position in the Balluf Pharmacy on Sixth avenue, and is now with John W. Ferrier on Broadway and 43d street.

'93 Notes.

As I have always said, nothing of any account can be going on, without one of our boys being distinctly "in it." Dr. J. Horni is surgeon on the hospital train running from Tampa, Fla., up to the northern cities with the wounded from Santiago. Usual luck, he won't hear the merry whistle of the bullet and be a veteran of the late war, anyhow.

We regret to be forced to say that we met Dick Specker at a show in a very spiritual (accent on the first two syllables) state of body, not mind.

That interesting and inseparable trio, Harry Heller, bike and camera can be seen on Eighth avenue any nice Sunday afternoon.

Dr. Schlichter has forsaken the ranks of freedom and is now a duly settled, married man. Long life and happiness to Mr. and Mrs. Dr. Schlichter.

Lehman had 100 per cent. in Dental Materia Medica at the Baltimore College.

The inimitable Tanny has sold his store in Brooklyn and opened another at Manhattan avenue, corner 117th street, New York. He met with a painful as well as dangerous accident, some Vichy syphons exploding, and cutting his face severely. He is luckily as good as new again, and we sincerely hope he will stay so for many years.

Raymond Paddock now has a store in Fulton street, Brooklyn, where he reports business as booming.

The lovely Jeremiah Timothy Brady Twomey is again located in Long Island City. He was lost for some time, but says he is only happy when within a mile of the immortal P. J. Gleason.

Ricksecker is still adding to his earthly wealth at 129th street and Seventh avenue.

James Wilson is still the same curly-haired young man of good moral character.

"Dear Old Sport Popper" Zwingli has opened a store in Saranac Lake, N. Y. His health has improved and, we sincerely hope, will continue doing so. He is in a fine climate and we hope his health and his wealth will keep on rolling up together.

Billy Reusswig seems to be the happiest man in New Jersey. And why shouldn't he be, with a charming wife and a prosperous business.

Jake Stage is in town with a splendid record from the Baltimore Medical College. He not only has the aforesaid record but also his bike, with which he is also trying to make a record.

Luttman is located at Columbus avenue and 81st street. He has grown a set of whiskers which should be the pride of the class.

Heidemann is now an M.D., and has secured the appointment at the Brooklyn Hospital, although there were eighteen contestants for the position.

Ambor has passed his first year at Bellevue.

And now comes the saddest as well as hardest task of all—the chronicling of the death of one of the boys whom we learned to love in the days we spent together. Hopkins is dead. He passed quietly away the second Sunday in July. Of his character and disposition I can say nothing that all who knew him do not already know, As a mutual friend said, "Would that more of us were like him, and could look back on our lives with as little shame as he could." I can add no more to that eulogy as these simple words tell of him all that he was. May the good he did live after him forever.

EUGENE F. LOHR.

'94 Notes.

Frank N. Pond, president of the N. Y. C. P. Cycle Club, has just returned from a pleasant outing spent with relatives at Nantucket, R. I.

Col. Louis B. Wade of "knock-out drop" fame, who is Frasers' genial northwestern representative, was in the City lately, making calls wherever he could locate a classmate. The Colonel is looking fine and feels well satisfied with his western abode.

Ex-Pres. Ehrgott has acquired an interest in the Hunt Pharmacy on Fifth Ave., Brooklyn, where he has been located for several years.

On making one of those pleasant Sunday trips to New Haven, I unexpectedly met Otto Marks, who is located and doing quite well in the "city of elms."

Nelson S. Kirk has been transferred from the Third Ave., Hegeman store, to the 59th Street one, where he is now manager.

'95 Notes.

The N. Y. C. Diploma in Central America.

The graduates of the class of '95, College of Pharmacy of the City of New York, will be glad to learn that their former classmate, Fermin Ferrer, formerly of Plainfield, N. J., and now of Managua, Nicaragua, is prospering in his new home.

In a recent communication to the Editor of the *American Druggist* he says:

"To show you that the New York College of Pharmacy is famed in Central America, as well as in New York, I enclose a copy of the official newspaper issued by the Government of Nicarauga, in which you will note that I was admitted a member of the local faculty of pharmacy on the sole presentation of my diploma."

The notice in the *Diario Official* of Managua, Nicarauga, reads:

"Visto el diploma de Fermaceutico extendido a favor de don Fermin Ferrer, por los Directores del Colegio de Farmacia de la cuidad de Nueva York, el dia 9 de Mayo de 1895, constando la autenticidad de dicho documento y la identidad de la persona, el Presidente del Estado, en uso de las facultades que la ley le confiere, acuerda: dar el pase de ley al expresado titulo y que se tenga al Senor Ferrer por incorporado a la Facultad de Farmacia del pais.

"Comuniquese—Managua, 3 de Junio de 1898—Zelya—El Ministro de Instruccion Publica—Matus."

Translated the above reads:

There have been produced to us the diploma of pharmacist, issued in favor of Mr. Fermin Ferrer by the Directors of the College of Pharmacy of New York, on the 9th of May, 1895, and there being no doubt of the authenticity of said document, as well as of the identity of the person named, the President of the State, making use of the faculties conferred on him by the law, resolves that the said diploma be made legally effective, and that Mr. Ferrer be incorporated in the Faculty of Pharmacy of the country.

Let it be published. Managua, 3 June, 1898—Zelaya. The Minister of Public Instruction—Matus.—*Kindness of Mr. Thomas J. Keenan of the American Druggist.*

George E. Manville, the "fatty acid radical," has been with the Maltine Manufacturing Company for some time. George, when last heard from, was studying a huge dictionary, preparing himself for the trade in Boston town. Smile George just to show them how you have changed since you left us.

Two '95 men have started out for themselves. John B. Foster and John H. Parker are the men. I have heard from both of them and they say that business is good and extend an invitation to all '95 friends to drop in to see them if in Newark.

I won't say anything about them, but Dürr is still on earth. Every month we see a notice of this same nature in some of the columns. It is stale boys but I can't help mentioning it in this case. They are poorly groomed Dürr, so get a rip-saw and let it rip.

Steinheuer said he was going in the navy. Did he? Ask him, if you can find the boy, I don't know but I would like to. Would like to know that we could boast of one '95 man.

I am sensitive to the fact that this column has been sadly neglected—partially my fault and partially everybody's. What can you do when you don't hear from a soul? '95 seems to be very diffident about their whereabouts. Very few of them come around, or attend Alumni meetings and in fact very few are members. You ought to be! Why can't you be? "Oh, I don't get any benefit from it." What can you expect? A twenty year "tontine" policy for a mint! What do you buy candy and flowers for? Not for the "benefit" you get from them I imagine. If you do you may get fooled.

Join the Association and subscribe for the JOURNAL. Hey! Q. E. D.

'96 Notes.

Sergt. Chas H. Lowe, class '96, is serving as Hospital Steward with the 9th Regiment N. G. S. N. Y. The last letter received from him was dated Camp Townsend, N. Y., but since that time has been in the far South. His brother, Francis A. Lowe, class '92, and lately of the firm of Lowe Bros., is managing the store at Arverne, L. I. '96 shows a man in the army; glad to hear it! If there are any more let them follow by sending us word of their whereabouts.

'97 Notes.

William E. Young, class '97, is with Dr. Richard Douglas, Nashville, Tenn. In his letter he gives Meinecke a dig. Give the D—— his due, Young.

The Wizard McKellar, "now you see him, now you don't," is still keeping on his game. Now one hears of him, then one don't. He is said to be in business in the old south state, "Carolina."

Has anyone heard from the highly distinguished lady, Miss Moith, from Fiskill-on-the-Hudson, N. Y., if you please?—*Ed. She is in Penn.*

She with much "dignity," Miss Fellows, is said to be teaching school in a private institution in that city of the much "learned" Boston. You know our class all reside here, that's why we prefer to live here.

Morey, the "infallible," is in the Hoosier State husking corn, I presume. It pays better than pharmacy, you know.

Philips is keeping shop on 8th Avenue near 52d Street.

Walling, our "Beau Brummel" from Jersey, is still in his much beloved Keyport. He's such a "nice manly fellow," some one used to say. I say "he is one of the best that ever happened to '97."

Palmer, of the Sunny South, has enlisted with one of the Georgia State Volunteers as Hospital Steward. Noble boy!

Rutherford is said to be hustling in his native city, Utica, that star city from which all our brights originated. You remember there are exceptions to every rule.

Oswald Ingham is still sighing to think he got the bronze medal. He is in business at Providence, R. I.

Wooten says I ought to have more regard for the fellows' feelings and not write some of the items I do. How pleasant it is to think we are not all so serious as our dear boy from the Turpentine state, North Carolina. He is in business with his brother at Greenville, N. C.

If Sloss were here now, what a harvest Guggenheimer and his law would have. Such a nice boy, but he knew how to say (——) so nice that it was a pleasure to hear him. He had such a "way with him."

White is with Messrs. Caswell, Massey & Co., Jamestown, R. I., for the summer season. Keeping up his usual record, breaking hearts, I suppose.

Our Sunday-school boy Roberts from Rome (N. Y., not Italy), is not "canning" this year. He is in a pharmacy somewhere back in York state.

Strawberry Blonde "Becker," the light of our class-room and sage of the class, is said to be rusticating in his home state, Massachusetts. Schirmer still mourns that new top coat Becker trade-marked commencement day at the Olympia Theatre.

Underhill prefers winter for vacation. He intends visiting the Ice Palace at Montreal. Summer is too hot. Its so much work to walk, you know.

EDWARD W. MENIECKE.

'98 Notes.

The following is a nearly complete list of '98 men who enlisted in the Navy. This list was obtained from the medical officer on the U. S. R. S. "Vermont," Brooklyn Navy Yard. Should any name be missed in this list the editor would deem it a favor by having it brought to his attention. Willis H. Alpers, U. S. S. "Maple;" Albert Beckary, U. S. S. "Gloucester;" August F. Eberhardt, U. S. S. "Alexander;" Louis Eickwort, Jr., U. S. S. "Armeria;" Louis H. D. Fraser, U. S. S. "Newark;" Isaac Gellert, U. S. S. "Hist;" Herbert P. Harrison, U. S. S. "Constellation;" Louis Hildebrandt, U. S. S. "Restless;" H. Christian Jorgensen, U. S. S. "Yankton;" Arthur D. Miles, U. S. S. "St. Paul;" John W. Patton, U. S. S. "Harvard;" Abdon V. Piskorski, U. S. S. "Pompey;" Arthur Richards, U. S. S. "Cassius;" Robert J. Sigel, U. S. S. "New Orleans;" Nicholas C. Senffert, U. S. S. "Richmond;" Anton Vorisek, U. S. S. "Aberenda;" William C. Wild, U. S. S. "Celtic."

Sigel deserves the distinction of having been the first '98 man to enlist. Look at the vessel he is on, and hasn't she done herself proud.

Beckary, likewise, for being the only '98 man on a vessel actively engaged during the destruction of Admiral Cervera's fleet. Read his letter. He is getting quite nautical now, to wit: "Who was nearly 'water-logged,'" etc.

Fraser, likewise, for being attached to a flagship for some little time, also for cutting such a "big swath" at Norfolk, Va.

Wild, likewise, for having a collier attached to him. Don't you care Wild, you made us all happy while we were on the "Vermont." I have the consolation of knowing you will be happy wherever you are and do your duty whatever is attached to you, even if it is a "taffrail."

Alpers, likewise, for being on a vessel that was engaged in offering terms of exchange after Lieutenant Hobson made his gallant dash. The "Maple" is blockading off Havana.

Eickwort for being the first one to write to the JOURNAL (OF PHARMACOLOGY) and "it's so" if you see it here. We were glad to hear from him through that medium and I hope the boys will send the JOURNAL all they can. "Jump in everybody" and let us hear from every one through its columns.

Harrison for being the only one to "bask" in the sunshine at Newport. Supposing he has to stay there all winter. It won't be such a social event then. There is another summer coming, Harrison, and you will be in it just the same even if the "Constellation" isn't.

Hildebrandt for trying to replace Linne. What a pity. Linne was a botanist and not an entomologist, but of course he knew something about "bugs." Ask me.

Jorgensen for being the first one to lose his hat overboard. "Jorgie" wasn't feeding the fish exactly but some way or other it got away. "Wasn't that a blooming howid thing to do. Oh, my."

Patton and Richards for being able to fall in with a Christian friend while at Norfolk. But it was "two bad" to fool a fine young man like that and especially when he knew so many nice young ladies. Patton came to New York one day while the "Harvard" was at Tompkinsville, S. I. and he bears greater distinction for being the only one of his party to report for duty the next morning at 9 o'clock.

Benjamin F. Maxey, formerly with Paradis on Myrtle avenue, Brooklyn, is now with Miner on the Bowery.

Well boys I hope to know some more by the time the next issue comes out and I may have to do some tall guessing at that. *Acierta errando*, ask your Cuban friends.

Q. E. D.

GUANTANAMO, CUBA, U. S. A., July 15, 1898.

MY DEAR FRIEND :

I have been thinking for a long time about writing to you but the heat and the sea has been too much to withstand.

I hope that everybody and that everything is going well at the old N. Y. C. P.

Since I left New York we have not been to any civilized port, always on the move, sometimes having target practice at the Spanish forts which has an excitement of its own. You probably know better than I do how the battle off Santiago de Cuba was fought. We had plenty to do with our own business and did not have time to watch the other fellows much. We did more than our share, sinking the two torpedo boats, Pluton and Furor. It is by wonderful luck that I am able to write now, for on Sunday, the 3d, I never thought I would be able to see the old institution and friends again.

I have been ashore a few times and I saw all kinds of cacti and palms. I could not help thinking of Dr. Rusby. Our smokeless cordite brought Drs. Chandler and Coblentz back to me. I was aboard the "Vizcaya" after she was sunk and the once beautiful cruiser showed a poor spectacle, all burnt, the bow blown up by the explosion of its own ammunition and full of water.

Some of the guns are still intact. I managed to pick up some relics which will be very interesting.

I had, on the 3d of July, some good experience with wounds and lacerations. As soon as the Pluton and Furor started to sink we sent our boat to pick up the men and many of our men risked their lives to save those of their enemies. I had 21 wounded lying on deck and I assure you they kept me busy. They were cut in all fashions and for the first time I saw what those wicked little six pounders of ours could do. I had the Spanish fleet surgeon in my room, he was not wounded but had absorbed too much salt water and was pretty near "water logged." Also had Admiral Cervera, who gave me 2 buttons. It is of no use telling you any more, the newspapers keeping you well informed, and we often laugh to think that an "extra" is coming out in New York on what we did (and didn't do) only a few hours before. I have not seen any of the boys except Wild who is on the supply ship Celtic. I think I was the only '98 man in the battle with Cervera's fleet. I want to join the Alumni just as soon as I can, send me particulars and I will forward money as soon as I can. Send me the JOURNAL also as I would like to hear from my classmates.

Please remember me to all those I have mentioned, to Drs. Diekman, Jelliffe, G. A. Ferguson, Gies and Mr. C. O. Bigelow, who gave me a flag on commencement night.

With kindest regards to yourself and all my friends

I remain

Very Truly,

ALBERT BECKARY,

Apothecary U. S. S. Gloucester, off Santiago de Cuba.

The following letter was delayed in the mails, but may prove of interest to many:

U. S. S. NEW ORLEANS,
OFF SANTIAGO DE CUBA, June 11, 1898.

DEAR FRIEND:

I suppose you will be surprised to hear from me away down here, but you know we are often surprised, so don't drop when you read this.

The heat here is something terrific and all we do now is to try and keep cool. We have had an exciting and war-like trip ever since we left Key West, May 23, to join Sampson's fleet at Matanzas.

The New Orleans seems to be the pride of the fleet, as she is the speediest of them all, and as soon as we arrived at Matanzas with Sampson we were put on scout duty, that being a compliment from the Admiral.

Every night we would be called out to general quarters, but during our career as scouts we came across nothing flying Spanish colors.

We left Sampson's fleet at Matanzas, Thursday, May 26th, and proceeded to join Schley's fleet at Santiago de Cuba, arriving here Monday, May 30th, bringing the "Sterling," a collier, with us.

On the way, during the night of May 27th, three shots were fired at us and immediately the "Sterling" was ordered to pull for the coast and we were to engage the enemy. We drew up close to her and caught her with the search-lights and the order was given by the captain to fire a broadside into her; but just at that critical moment she threw up the signal "Machias" and in a flash everything was ordered secure, and that is all that saved the "Machias" from the bottom of the Caribbean Sea.

This is one of the examples of the many experiences we had getting here. On arriving here we proceeded to coal ship from the "Sterling" and I met Pompelly; if you remember, he's one of the junior boys at N. Y. C. P. He seems to be in the best of health and likes the service very much, but wishes he could get into a scrap, as he says he would like to get mixed up in the fun a little bit himself. Pompelly has the whole thing to himself on the "Sterling," as there is no surgeon on board, and the day we coaled ship he brought a man over to have a finger amputated.

The harbor of Santiago de Cuba is a very difficult thing to enter, as the mouth is only wide enough for one ship at a time to enter. A broad bay proceeds back 4 or 5 miles and at the head is the city of Santiago de Cuba, with a population of about 45,000 and 15,000 to 20,000 soldiers.

In this harbor we have caught the Spanish fleet under the command of Admiral Cervera, as I suppose you have already seen in the New York papers.

To keep these ships from slipping out of the harbor we sank an old collier known as the "Merrimac," manned by volunteers from the fleet, directly in its mouth and now all the men who are on her are either killed or taken prisoners, which, we do not know.

On May 31st, before the collier "Merrimac" was sunk in the mouth of the harbor and the day after our arrival, the Spaniards made an attempt to get out of the harbor, but immediately the Iowa, Massachusetts and New Orleans were ordered by the flagship, Brooklyn, to chase them back in again, and in we went. We gave them 162 American liver pills, 6 in. in diameter, and the Iowa and Massachusetts gave them 88 each. After they got enough they turned and went back in.

When the whole thing was over "Fighting Bob" Evans called to us and said, "H—l of a good ship you've got there; she can shoot like h—l."

The next event was during the night of June 4th. About 10:15 o'clock a small dark object was seen to move very quickly along in the shore waters and immediately

we were called to quarters and the small guns were starting to pour a shower of shot and shell into the fast moving object, which at last disappeared and was supposed to have been sunk,.and to further confirm our thoughts the Porter, our own torpedo-boat, found two 16-inch torpedoes floating close to shore and which must have been fired at us but failed to take effect.

The admiral asked us what we were firing at, but the next day when the torpedoes were found he sent the officers and crew his compliments and said he would recommend us to Congress.

On June 6th was the day we did them up good, and what we did was plenty. At 7:00 A. M. orders were given to fire upon the batteries and to keep it up until every battery was silenced.

The harbor here was protected by about 5 or 6 batteries and at the entrance is a large castle known as Morro Castle, same as the rest of the Spanish castles, and now all that remains is the ground upon which they formerly stood.

Well we started at 7:00 A. M. and a steady stream of shot and shell was poured upon the forts from about 12 or 14 American ships until 11:00 A. M.

The loss of life must have been terrible as there was a perfect hell on shore and no living being could stand within miles of the forts.

There were two terrible explosions during the action and the officers say we must have blown up their magazine.

At 11:00 A. M. all batteries were silenced excepting two guns at the left of Morro Castle and we were sent in to silence them ; we went in, fired one broadside and all was off; they immediately quit and we drew off.

We lay around the rest of the day discussing the affairs of the morning and what we expected to do next.

This 9 A. M. a troop ship arrived with 800 troops and by to-morrow 26,000 are expected. If the troops arrive to-morrow I suppose they will immediately be landed and then there will be a large time on shore.

Not a shell hit us during the action of the 6th but a few came our way that could be heard to buzz over our heads pretty close.

I like the service very much only since we have been down here where we cannot get fresh stores we have to eat corned beef and hard tack and drink coffee ; but this morning a provision steamer came into the fleet and I suppose we will now have a few fresh provisions.

The fleet here consists of the Brooklyn, New York, Marblehead, Iowa, Texas, Oregon, Massachusetts, Dolphin, Yankee, Prairie, Yosemite and New Orleans and many smaller scouts like the Scorpion, Mayflower and Eagle, etc.

Well, old man, I think I had better break this off as I suppose you have heard it all days and may be weeks ago.

Our duties are about as follows : The first thing we do is to have the Bayman (or the nurses) clean up the dispensary and sick-bay and at 8:30 A. M. the doctor comes down to see those who wish to see him. He prescribes for them, and after sick-call the patients return to get their medicine, and so goes on our work day in and out.

I suppose you are getting ready for the next season's work and are kept pretty busy.

I am out of postage stamps and to get them down here is an impossibility, so I think you will overlook it this time. We can send our mail without stamps, but I suppose they make you pay it at the other end.

Well, old man, I must close with regards to all the boys and yourself.

Your friend,

ROBT. J. SIGEL, U. S. N.,

U. S. S. New Orleans.

"Apothecary."

P. S.—Excuse this paper as it was necessary for me to use it. I am out of all other. I would like to get a hold of an *American Druggist* of the month or the one in which Mr. Keenan gave the boys a roast.

'99 Notes.

One of our students visited Dr. Hoburg at West End and found him working very hard, as the season was at its height at that time.

It is rumored that George C. Roux, in company with a few other of our boys, is camping out at Patchogue, L. I.

By the way, the trustworthy student who is in Ulster Park is not studying anatomy, but the botany of the beautiful trees and flowers.

Leon F. Sherwood, of Liberty, N. Y., was in town for a few days last week. "He is looking well, you know."

Edward W. Clark, the beau brummel of the class, is spending his summer at West End, N. J. He is incidentally working "between the acts" at the Atwood Pharmacy. He is the same fine young man.

Herman Orlando Rolfs is spending his vacation at his home in Davenport, Iowa.

The Utica, N. Y., contingent, consisting of Tyler and Sullivan, were heard from some time ago. They are both working the clothes off their backs so that they will be in trim for the winter. Hogle, of the same place, rested in New York, being employed by Mr. C. S. Erb.

A number of the boys have matriculated, thereby securing choice seats.

Sergeant Edwin A. Keefer, enlisted in the 12th Regiment, 2d Division Hospital, 1st Army Corps, as Hospital Steward. He has been stationed at Chickamauga National Park, Georgia, for some time past, but, to use his own words, this is the address, viz: "Wherever we may be."

Was '99 behind in sending men? Not much! '98 may carry the palm for number, but they can't boast any more than we in regard to quality, even if we are juniors. That's not all, either. We are represented in the same style in the navy. Frank E. Winters is the apothecary aboard the good U. S. H. S. "Solace," and Wm. C. Pumpelly is attached in the same capacity to the U. S. S. "Sterling." Winters made quite a stop in New York, for the "Solace" came here for stores and to have an ice and carbonating machine put in. Pumpelly has not been heard from directly. You are all right, boys, and old '99 will ever be proud of the stock she sent to the front.

Our classmate Theodore E. Meyer, of Wilkesbarre, Pa,, met with an accident a short time ago. Another case of "no knowing it was loaded." In this instance it happened to be a soda tank instead of a gun. Luckily Meyer escaped much damage, being laid up for only a few days.

C. E. F.

N. Y. C. P. C. C.

Our energetic secretary, L. G. B. Erb, started off at 6 a. m. one morning in early August on his vacation, riding to Philadelphia, where he "took in the "town," then journeying to the western part of the State to rest his weary bones. Upon his return we presume he will be challenging Michael, Linton or some other long-distance rider.

President Pond will personally conduct the majority of the runs this fall. He has a new mount which enables him to come very near "leading the van" in sprints.

One of our graduates has taken such a great interest in his Alma Mater that he sent the following letter to a prospective student:

"I would like to C-u-b-a student at the N. Y. C. P. this fall. De-wey want you? Don't be S-c-h-ley for I may get (Sh)-after you.

"The "Merritt" of the N. Y. C. P. graduates has been known for a "Long" time and has spread thousands of "Miles," etc.

(Signed), XXXX.

Notice.

Second and third-class mail matter is being held at the College for the following students. Will be remailed upon request by sending proper address and postage to cover same, viz:

E. M. Lougee.	B. Pepling.
A. E. Vars (3 parcels).	D. F. Wettelin.

Diplomas and certificates for graduates of class of '98 will be ready about September 15, 1898.

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CONTENTS.

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Maltine

MALTINE is not merely "malt," nor is it a mere "extract of malt," nor an "essence of malt."

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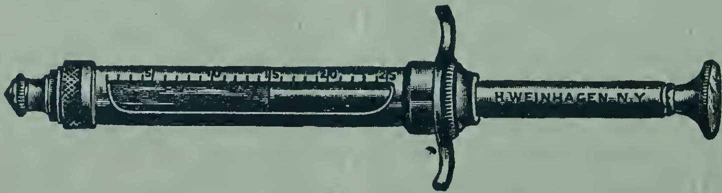

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A Comparison of the English and German Works on the Genera of Plants, with Special Reference to the United States Pharmacopœia.

By Professor H. H. Rusby, M.D.

[Read at the Baltimore Meeting of the American Pharmaceutical Association, 1898.]

The importance of system and consistency in such works as the Pharmacopœia has always received recognition through the selection by their compilers of authorities or codes by reference to which doubtful or disputed questions are decided. In no department is there a more extensive demand for such formal treatment than in regard to the two hundred or more species of plants which enter into our official work. These were consistently treated by the last committee of revision. The Rochester Code of Rules for Nomenclature, the fruit of a decade of study and discussion, was adopted, thus bringing the Pharmacopœia into harmony with the National Departments of Agriculture and Forestry, and with the American Association for the Advancement of Science and the Botanical Society of North America. In classification the English authority, the Genera Plantarum of Bentham and Hooker, was adopted, except as to cases of plain error. It was recognized that this work was seriously faulty in some ways, and that some of the changes necessary in following it were in themselves undesirable. Still, it appeared at the time to furnish the only complete work of the kind available. Since then, the great German work, the Pflanzenfamilien of Engler and Prantl, has been practically completed, and it becomes a matter of necessity for the next Committee of Revision to consider

the comparative merits of the two works as authorities. The publication of such works is not of frequent enough occurrence to make it likely that this necessity will again occur for a generation or more.

It is well to anticipate objections to changes in the Pharmacopœia by pointing out that any thus involved will not affect in any way the titles, working formulæ or processes, or anything else which touches medical or pharmaceutical practice, and cannot possibly disturb the convenience or safety of any one. They pertain to formulæ which concern only the accurate definitions of the titles, and which, like the chemical formulæ, should always be kept as close as possible to absolute scientifiic accuracy. It would seem as though no reasonable objections could be filed against corrections of this character, although this has, hastily and thoughtlesssly, as it seems to me, been done, notably in the last edition of the United States Dispensatory.

While upon the subject, the exact number and nature of the changes which would be involved in adopting the German authority may be indicated. We note first that the species names are not affected, as neither of these works treats of species, except incidentally, and then only in rare instances. The changes will extend only to family and genus names, the latter alone being of importance. Of generic changes there would be but eight at the most; and one of these I should regard as an error, and refuse to adopt it. This is the merging of the genus *Cimicifuga* into *Actæa*, by Dr. Prantl. It would appear to be a long step backward in classification to unite a genus producing dehiscent capsules with one yielding berries; and this, moreover, in the absence of any intermediate or connecting forms. The seven necessary changes thus left are as follows:

1. The genius *Cydonia* is maintained for the quince.
2. The genus *Dichopsis*, yielding gutta percha, is referred to *Palaquium*.
3. The name *Uragoga* is restored to the genus yielding ipecac.
4. The genus *Exogonium*, yielding jalap, is restored.
5. *Picræna*, yielding quassia, is referred to *Picrasma*.

6, 7. The genus *Sinapsis* is maintained as distinct from *Brassica*.

Three other generic changes are required, not on this account, but merely to correct errors in nomenclature. The name *Leontice* should have replaced that of *Caulophyllum* in the present edition but for a slip by which the synonym was printed with authority, and the name was reduced. For *Andira* there is an older name, *Vouacapoua*, of Aublet. *Chondodendron* should be spelled *Chondrodendron*. One other similar change proposed by Dr. Engler is based upon error, and cannot be adopted. He would substitute *Schoenocaulon* for *Asagræa* on the basis of the date which has been published for Bentham's Plantæ Hartwegianæ. In a previous communication to this association I pointed out that this date was erroneous, and that *Asagræa* was the older name.

Turning next to the less important changes in family names we find eleven of them, as follows: The Moraceæ are separated from the Urticaceæ and include *Cannabis* and *Ficus;* the Ulmaceæ also are accorded family rank and include *Ulmus; Thea* is referred to Theaceæ, *Elettaria* and *Zingiber* to Zingiberaceæ, *Castanea* to Fagaceæ, *Chimaphila* to Pirolaceæ, *Erythroxylon* to Erythroxylaceæ, *Punica* to Punicaceæ and *Krameria* to Krameriaceæ.

The total number of changes involved is thus seen to be eighteen.

If now we do not adopt the new authority there are but two courses open to us. The first is to discard all authority and to decide our cases independently. This would probably result in a much larger number of changes, for, besides those above enumerated, American authority would probably separate *Pulsatilla* from *Anemone*, *Leptandra* from *Veronica*, *Padus*, containing the wild cherry, from *Prunus*, and perhaps *Amygdalus* also, the division of the Liliaceæ into several families, especially separating the Smilaceæ, containing *Sarsaparilla*, the separation of the Lobeliaceæ from the Campanulaceæ, the division of the Leguminosæ into three families, the division of the Compositæ into three or more, and the isolation of the Krameriaceæ. Aside, therefore, from objections on principle to the Pharmacopœia Committee acting in a general way as an independent authority, such action might be deprecated as favoring an excessive number of changes. The only other course open to us is to continue to follow the English authority. To discuss this particular point is the object of the present communication. The question is so important that we cannot afford to restrict its discussion to the cases which are affected in the Pharmacopœia. It is essential that so influential a work should inquire closely into the general merits of any system whose authority it proposes to accept.

The points of comparison between the two works may be advantageously divided into those relating to their nature as scientific productions and as books. Of the first-mentioned class we have the following:

1. The respective dates of publication. Fifteen years elapsed between the dates on which the two works were completed and twenty-seven between those of their completion. This average period of twenty-one years was astonishingly active and productive both in the discovery of new material and in field, herbarium and laboratory study, and was ample for the revolutionizing of any such a system.

2. The kind of study bestowed upon the two works. At the time of the preparation of the Genera Plantarum, the comparative anatomy of plants was but little known—less so in England than almost anywhere else—and especially was its value as a factor in classification unrecognized, and the proposition to so use it held in contempt. It is true that Messrs. Bentham and Hooker gave great weight to habit in classification, and gave

it a liberal interpretation, yet we cannot regard the epoch as having witnessed any extended application of the facts of plant anatomy, physiology, composition or properties, to classification. Such has, however, been done in the Pflanzenfamilien of Messrs. Engler and Prantl. The classification of each family is preceded by an analysis of its morphology, anatomy, physiology, composition and properties, and to a great extent these subjects are treated comparatively with regard to related families. The effect of such treatment upon the systematic result cannot well be over-estimated. It seems almost foolish to urge the saying that things which are different are not the same, and yet there are few principles which have been so generally violated and with such disastrous results. In plant-classification the principle has been almost general and professed of limiting comparison to differences of certain classes, and when these are wanting, of declaring the subjects the same, no matter how great the differences of other classes which might exist. The publication of the Pflanzenfamilien marks a new epoch in natural history in this direction, and its recognition by pharmacy is imperative.

3. We note that the classification of Engler and Prantl is made in view of the entire sequence of plants, for they treat cryptogams as well as phanerogams. Technically, of course, this view was not lacking to the authors of the Genera Plantarum, but the task of formulating the complete series in one work necessitated an attention to relationship which could not fail to exert an indirect influence even upon the recognition of relations between the phanerogams themselves.

4. The number of persons engaged upon the two works. The Genera Plantarum is practically the sole product of the two authors whose names appear upon the title-page, and of Professor Oliver, who ascertained a vast number of the facts upon which the classification depended. As a result of judgment of general relationship it is chiefly the work of Mr. Bentham alone. In the case of the Pflanzenfamilien sixty authors divided the work, each taking up his portion as a specialty. The authors were specialists of a genuine kind, having first acquired general fitness and a broad grasp of natural relations upon which their specialties were then grafted. It must be admitted that this difference does not tend wholly to the advantage of the more specialized work. An immensely greater amount of knowledge and thoroughness of treatment is secured, but with it a certain degree of diversity in treatment is inevitable. No considerable number of systematists can be gotten together who will not represent upon the one hand refined segregation, and upon the other broad unification. This of necessity introduces into such a composite work as the Pflanzenfamilien a more or less serious want of equality and uniformity in treatment, which is happily quite absent from the Genera Plantarum. It is, however, not nearly so conspicuous in the former work as was anticipated, and is not, on the

whole, very serious. In any case, it cannot appear as other than trivial when considered beside the advantages of intelligent specialization already referred to.

Lastly, we have the advantage in the Pflanzenfamilien of a rational and well-digested system of nomenclature, replacing the chaos of names of the Genera Plantarum.

The results of the more favorable conditions enumerated are strikingly apparent to one who uses the German work after having been accustomed for years to the use of the English one. We find, excluding the post-scripts of both works, 280 families and 8,218 genera recognized by the new work, against 200 families and 7,316 genera in the old. Ten to twenty per cent. of this increase in genera is probably a fair allowance for discovery, the remainder being due to a greater amount of segregation, as the result of more thorough study of the composition of the genera. As to the increase in the number of the families it must be credited almost wholly to the latter cause.

In connection with this change, we note the almost complete disappearance of the hodgepodge families and genera which were characteristic of the Genera Plantarum, with the full recognition of its authors, and which have always constituted a subject of merriment. The Saxifragaceæ and Olacinaceæ were yawning waste-baskets which might receive any genera not subject to a clear understanding.

The change in the order of arrangement is so great as to constitute a sore trial to those who have become habituated to the older one. There can be no serious question, however, of its correctness. Relationships have been well studied, and however imperfect may be the attempt to form a natural sequence, it has been made, and its very failures will become the germs of discovery.

In view of the considerations above set forth, the writer has no hesitatioa in urging upon the Pharmacopœia Committee that they sustain their progressive record by adopting the authority of the modern work.

Before closing I may say a few words concerning the merits of the two works merely as books. The results of this comparison are as unfavorable to the German work as our previous one has been favorable. Clumsiness, inconvenience and lack of common sense are grave faults in most German work, and introduced to one which required to be used like the Pflanzenfamilien they tend to detract in a high degree from its usefulness. The first fatal error which we notice is in so dividing up the work that it becomes necessary to have several distinct indices for one volume. Directly upon the top of this, the almost inconceivable folly has been committed of making no provision for finding the different parts of the volume, except by turning over consecutively more or less of a thousand pages, the regular German method of working. When the required part

is found we naturally, and, indeed, of necessity, turn to its key to locate the required genus. Now we find that the key is broken up into a great number of parts and sub-parts, and that these are scattered from the first to almost the last page of the part. There is, it is true, a general key to the parts of the key, but there is nothing to indicate where these parts are to be found, and the page-turning method must be again resorted to. No index or key whatever is provided for the synonyms. In a postscript to the entire work a complete index, including synonyms, has been furnished, but this only in part atones for its want in connection with the several volumes. Wherever the authors have substituted a new name for that by which the genus has previously been known, and such cases are very numerous, the only possible way to find it is to know in advance what the change is, and this is manifestly impossible in most cases. The successful use of a reference-book thus constructed implies a perfect familiarity with its subject-matter, and it is obvious that exactly in proportion as this familiarity is possessed, the necessity for using it is absent. It is fair to judge that the authors did not have in mind the wants of those who were to use the book. Everyone who has found it necessary to make any extended use of the book has been obliged to expend an amount of labor in preparing indices and keys worth more than its original cost. The generic descriptions of the Pflanzenfamilien are of the most fragmentary character. Indeed, they can hardly be called descriptions at all, but mere diagnoses. The employment of illustrations is a redeeming feature, but this is very partial, and the figures are for the most part not well selected from the standpoint of the user's needs, however well they may accord with the specialized ideas of the authors.

Contrasting all this with the English work, we find the latter composed of three volumes, of seven parts, each preliminary part with a full index, which is duplicated in the index of the volume. In these indices all synonyms (or the names treated as such) are printed in italics, those treated as names in Roman. Complete keys precede each family, the numbering of the genera affording a perfect means of reference. The amount of time required for doing reference work by this book is certainly not more than one-fifth of that required for the Pflanzenfamilien, and much of the latter cannot possibly be done at all, except by the aid of the Genera, used as a key. When the required genus is found in the Genera we have a complete, systematic and orderly description, leaving nothing wanting to a decision.

I have devoted much time to the preparation of the accompanying comparative table, setting forth the composition and the arrangement of the two systems, which will, I am sure, be found of assistance to botanists in various ways.

In this table the names of the families are printed in the order of their occurrence in the Pflanzenfamilien. When the composition of the family is the same in both books the number of genera which it is accorded in the Pflanzenfamilien is indicated in the third column of figures, that of the genera in the fifth and last column. In the second column the consecutive numbers, as per Engler and Prantl, are printed, and in the fourth column of figures its position in the Benthamian sequence is indicated by figure. As the two works start at opposite ends of the series, it was necessary to reverse the order of numbering for the Genera Plantarum. Even this change does not give numbers which could be rationally contrasted with those in the second column, because one of the former is often the equivalent of several in the latter. Another column is therefore provided at the extreme left which constitutes the equivalent of the corresponding family of the Genera. It is therefore clear that by comparing a number of the first with the corresponding one of the fourth column of figures we can judge of the position of a family in the two works. Thus, the thirty-fifth family of Bentham and Hooker is the first by Engler and Prantl. The first of the former becomes the tenth of the latter in point of order, though numbered the twentieth, owing to subdivision of the preceding families. Various conditions prevented this comparison from being made absolutely accurate, but it is sufficiently near it for all practical purposes.

When Messrs. Engler and Prantl, in dividing up a family, have kept its component parts together a brace pointing to the corresponding Benthamian number and another at the left pointing to the relative Englerian number indicate the fact. When the component parts are separated, a parenthetical note follows, referring the reader to the number or numbers of the second column, where the complementary part or parts may be found. In such cases the abbreviation pp. (*pro parte*) will be found after the serial number, per Bentham and Hooker, of the fourth column.

Relative No., Engler and Prantl.	Series No., Engler and Prantl.	Genera, Engler and Prantl.	Family-name. Engler and Prantl.	Serial No. (reversed), Bentham and Hooker.	Genera, Bentham and Hooker.
1	1	9	Cyoadaceæ, ...	35	9
	2		Bennettitaceæ, .	Fossil.	
	3		Cordaitaceæ, .		
	4		Dolerophyllaceæ,		
2	5	1	Ginkoaceæ,	36	32
	6	8	Taxaceæ, .		
	7	25	Pinaceæ, .		
3	8	3	Gnetaceæ, ...	37	3
4	9	1	Typhaceæ (See 11),	11 pp.	2
5	10	2	Pandanaceæ, . . .	13	2
	11	1	Sparganiaceæ (See 9),	11 pp.	
6	12	9	Potamogetonaceæ,	6	16
	13	1	Najadaceæ, . .		
	14	1	Aponogetonaceæ,		
	15	4	Juncaginaceæ, .		
7	16	10	Alismaceæ,	7	12
	17	4	Butomaceæ,		
8	18	14	Hydrocharitaceæ, .	34	14
9	19	2	Triuridaceæ, . . .	8	2
10	20	313	Gramineæ, ...	1	298
11	21	65	Cyperaceæ, . . .	2	61
12	22	128	Palmæ, ...	14	132

Relative No., Engler and Prantl.	Serial No., Engler and Prantl.	Genera, Engler and Prantl.	Family-name, Engler and Prantl.	Serial No. (reversed), Bentham and Hooker.	Genera, Bentham and Hooker.
13	23	6	Cyclanthaceæ,	12	4
14	24	105	Araceæ,	10	98
15	25	3	Lemnaceæ,	9	2
16	26	3	Flagellariaceæ,	16	3
17	27	19	Restionaceæ,	3	20
18	28	6	Centrolepidaceæ,	4	4
19	29	1	Mayacaceæ,	19	1
20	30	2	Xyridaceæ,	20	2
21	31	6	Eriocaulonaceæ,	5	6
22	32	6	Rapateaceæ,	17	6
23	33	40	Bromeliaceæ,	30	27
24	34	25	Commelinaceæ,	18	25
25	35	6	Pontederiaceæ,	22	4
26	36	3	Philydraceæ,	21	3
27	37	7	Juncaceæ,	15	14
28	38	3	Stemonaceæ,	24	3
29	39	197	Liliaceæ,	23	187
30	40	9	Hæmodoraceæ,	29	26
31	41	71	Amaryllidacæ,	27	64
	42	2	Velloziaceæ,		
32	43	2	Taccaceæ,	26	2
33	44	9	Dioscoreaceæ,	25	8
34	45	57	Iridaceæ,	28	57
35	46	6	Musaceæ,	31	36
	47	24	Zingiberaceæ,		
	48	1	Cannaceæ,		
	49	12	Marantaceæ,		
36	50	9	Burmanniaceæ,	33	10
37	51	410	Orchidaceæ,	32	334
38	52	1	Casuarinaceæ,	43	1
39	53	3	Saururaceæ, (See 98),	62 pp.	8
	54	9	Piperaceæ,		
40	55	3	Chloranthaceæ,	61	3
41	56	1	? Lacistemaceæ,	40	1
42	57	2	Salicaceæ,	41	2
43	58	1	Myricaceæ,	44	1
44	59	1	Leitneriaceæ,	46	1
45	60	1	Balanopsidaceæ,	49	1
46	61	6	Juglandaceæ,	45	5
47	62	6	Betulaceæ,	42	10
	63	5	Fagaceæ,		
48	64	13	Ulmaceæ, (See 83),	48 pp.	108
	65	55	Moraceæ,		
	66	41	Urticaceæ,		
49	67	50	Proteaceæ,	57	49
50	68	21	Loranthaceæ,	53	13
51	69	1	Myzodendraceæ,	52	28
	70	26	Santalaceæ,		
	71	1	Grubbiaceæ,		
52	72	7	Opiliaceæ, (See 163),	156 pp.	36
	73	25	Olacaceæ,		
53	74	14	Balanophoraceæ (See 226),	51 pp.	14
54	75	5	Aristolochiaceæ,	63	5
55	76	7	Rafflesiaceæ,	64	7
	77	2	Hydnoraceæ,		
56	78	30	Polygonaceæ,	67	30
57	79	75	Chenopodiaceæ (See 87),	70pp.	80
58	80	40	Amarantaceæ,	71	48
59	81	19	Nyctaginaceæ,	73	23
60	82	1	Batidaceæ,	68	1
	83	1	Cynocrambaceæ (See 64),	48 pp.	
61	84	23	Phytolaccaceæ,	69	19
62	85	18	Aizoaceæ,	122	22
63	86	17	Portulacaceæ,	178	15
	87	5	Basellaceæ, (See 79),	70 pp.	
64	88	70	Caryophyllaceæ,	179	35
65	89	8	Nymphæaceæ,	193	8
66	90	1	Ceratophyllaceæ,	38	1
67	91	3	Trochodendraceæ (See 96),	197 pp.	
68	92	27	Ranunculaceæ,	200	30
69	93	7	Lardizabalaceæ,	194	19
	94	8	Berberidaceæ,		
70	95	42	Menispermaceæ,	195	31
	96	9	Magnoliaceæ (See 91),	197 pp.	9
71	97	1	Calycanthaceæ,	198	2
	98	1	Lactoridaceæ (See 53),	62 pp.	
72	99	46	Anonaceæ,	196	40
73	100	1	Myristicaceæ,	60	1
	101	1	Gomortegaceæ (See 103),	58 pp.	
74	102	23	Monimiaceæ,	59	22
75	103	39	Lauraceæ,	58 pp.	34
	104	4	Hernandiaceæ (See 101),		
76	105	28	Papaveraceæ,	191	24
77	106	208	Cruciferæ,	190	172
78	107	1	Tovariaceæ,	189	23
	108	34	Capparidaceæ,		
79	109	6	Resedaceæ,	188	6
80	110	1	Moringaceæ,	146	1
81	111	3	Sarraceniaceæ,	192	3
82	112	1	Nepenthaceæ,	65	1
83	113	6	Droseraceæ,	140	4
84	114	20	Podostemonaceæ,	66	21
	115	1	Hydrostachyaceæ,		
85	116	13	Crassulaceæ,	141	14
86	117	1	Cephalotaceæ (See (121),	142 pp.	73
	118	69	Saxifragaceæ,		
87	119	10	Pittosporaceæ,	183	9
	120	1	Brunelliaceæ (See 137, 139, 196),	161 pp.	30
	121	20	Cunoniaceæ (See 118),	142 pp.	
	122	1	Myrothamnaceæ (See 124),	139 pp.	
88	123	12	Bruniaceæ,	138	10
89	124	10	Hamamelidaceæ (See 122),	139 pp.	15
90	125	1	Platanaceæ,	47	1
	126	1	Crossosomataceæ (See 180, 278),	199 pp.	

Relative No., Engler and Prantl.	Serial No., Engler and Prantl.	Genera, Engler and Prantl.	Family-name, Engler and Prantl.	Serial No. (reversed), Bentham and Hooker.	Genera, Bentham and Hooker.
91	127	91	Rosaceæ (See 181),	143 pp.	71
92	128	14	Connaraceæ,	145	12
93	129	431	Leguminosæ,	144	339
94	130	11	Geraniaceæ (See 153, 169),	163 pp.	20
	131	5	Oxalidaceæ,		
	132	1	Tropæolaceæ,		
95	133	9	Linaceæ (See 135),	167 pp.	14
96	134	3	Humiriaceæ,	166	3
	135	2	Erythroxylaceæ (See 133),	167 pp.	
97	136	22	Zygophyllaceæ,	164	17
	137	1	Cneoraceæ (See 120, 139, 196),	161 pp.	
98	138	111	Rutaceæ,	162	83
99	139	28	Simarubaceæ (See 120, 137, 196),	161 pp.	
100	140	16	Burseraceæ,	159	18
101	141	44	Meliaceæ,	158	37
102	142	54	Malpighiaceæ,	165	49
103	143	2	Trigoniaceæ,	180, a	
	144	5	Vochysiaceæ,		
104	145	3	Tremandraceæ,	182	3
105	146	10	Polygalaceæ,	181	15
106	147	3	Dichapetalaceæ,	157	3
107	148	221	Euphorbiaceæ (See 150),	50 pp.	197
	149	1	Callitrichaceæ (See 225),	137 pp.	9
	150	6	Buxaceæ (See 148),	50 pp.	
108	151	3	Empetraceæ,	39	2
109	152	1	Coriariaceæ,	147	1
	153	2	Limnanthaceæ (See 130, 169),	163 pp.	
110	154	59	Anacardiaceæ (See 157),	148 pp.	46
111	155	3	Cyrillaceæ,	154, a	3
112	156	1	Pentaphalaceæ (See 183, 186, 200),	173 pp.	
	157	1	Corynocarpaceæ (See 154),	148 pp.	
113	158	5	Aquifoliaceæ,	155	3
114	159	38	Celastraceæ,	154	39
	160	3	Hippocrateaceæ,		
115	161	2	Stackhousiaceæ,	153	1
	162	6	Staphyleaceæ (See 164, 168),	150 pp.	
	163	38	Icacinaceæ (See 72),	156 pp.	
116	164	2	Aceraceæ,	150 pp.	73
	165	2	Hippocastanaceæ (See 162, 168),		
	166	118	Sapindaceæ,		
117	167	4	Sabiaceæ,	149	4
	168	3	Melianthaceæ (See 162, 164),	150 pp.	
	169	2	Balsaminaceæ (See 130, 153),	163 pp.	
118	170	46	Rhamnaceæ,	152	37

Relative No., Engler and Prantl.	Serial No., Engler and Prantl.	Genera, Engler and Prantl.	Family-name, Engler and Prantl.	Serial No. (reversed), Bentham and Hooker.	Genera, Bentham and Hooker.
119	171	11	Vitaceæ,	151	3
	172	7	Elæocarpaceæ (See 175),	168 pp.	
120	173	7	Chlænaceæ	171	4
	174		Gonystylaceæ (See 214),	56 pp.	
121	175	35	Tiliaceæ (See 172),	168 pp.	40
122	176	33	Malvaceæ,	170	59
	177	20	Bombacaceæ,		
123	178	48	Sterculiaceæ,	169	41
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The Testing of Clinical Thermometers.

By Charles Rice.

The clinical thermometer is an important factor in the diagnosis and prognosis of disease at the present day. Without its aid the approach or advent of numerous dangerous diseases or pathological conditions cannot be recognized with certainty, until the disease or condition has advanced to a stage where it may become less amenable to treatment, and where the result depends largely upon the vital resources of the patient, which might have been materially fortified if the physician or surgeon could have utilized the information conveyed by a reliable thermometer.

The general public scarcely realizes the extent to which the business of manufacturing clinical thermometers has progressed at the present time. While, some twenty-five years ago, the clinical thermometer was looked upon rather as a curiosity and

hypercritical appliance, its annual production and consumption now reaches into the millions.

Of course, the only practically useful clinical thermometer is the self-registering one ; and this may be of two kinds, either with plain front, or with magnifying front lens. Of either of these there are again various grades or classes, differing as to the shape of the bulb or stem, length of stem, color of glass, sensitiveness, etc., etc. It is assumed that the reader is familiar with the several kinds ; hence a description is deemed superfluous here. Moreover, for our purposes, all these distinctions can be disregarded, since the method of testing their accuracy, which will be described below, can be applied to all.

As a rule,clinical thermometers are graduated between about 94° and 110°F., in one-fifth of a degree. For special purposes, where unusually high temperatures are to be measured (as sometimes in cases of insolation, etc.), some may be had on which the graduation is carried to 115°F. or even higher.

If it is the object to examine the *absolute* accuracy of a thermometer for *every degree* of its scale, the mode of procedure is much more complicated than that below given, and requires special apparatus and considerable practical experience. For this reason, so-called "standard" thermometers are rather expensive, and even the commercial certificated clinical thermometers are rather high in price. Of course, if these have been tested by a reliable authority, they are fully worth the money. But the general public and most of the hospitals and charitable institutions in this country cannot afford to pay this high price, and, therefore, have to content themselves with uncertificated ones. But here they run the risk of getting worthless instruments. While much trust may be placed in the names of certain manufacturers, it is nevertheless a fact that even the best brands will be found now and then—sometimes even a good deal—deficient.

Among the pharmacists in this country there are many who do a large business in clinical thermometers, and whose professional reputation is of such a character that their certification would be accepted by medical men of their acquaintance, and eventually also by others and the public, as a satisfactory guaranty of the accuracy of any thermometers tested by themselves. There is, hence, a chance here of expanding their business in a legitimate direction, and the writer hopes that this suggestion will be followed by those who may find it worth their while.

In the course of many years' experience the writer has examined many thousands of thermometers, and has long ago settled down to a method which aims to avoid errors of observation as far as possible, it is believed, and which permits to ascertain the accuracy of instruments within limits that are considered sufficient in practice, namely, *one-tenth of a degree*, though for ordinary clinical purposes an accuracy to *one-fifth* of a degree is amply sufficient.

Of course, the first requisite for testing thermometers is the possession of a *standara* thermometer. This need not be an expensive instrument, but may be any well-seasoned clinical thermometer which has been carefully compared with a standard one and found to be sufficiently accurate, or whose deviations from the standard are exactly known for every degree of its sale. "Well-seasoned" in this case means that it must have been made several years before it was graduated, as it is well known that the calibre or bore of a thermometer suffers slight changes for some time after it has undergone the process of manufacture. The best-reputed makers of thermometers state that they never graduate and sell any thermometers that are not fully seasoned. Unfortunately, there is no test by which a seasoned thermometer can be distinguished from an useasoned one at the time of purchase. And while honest makers no doubt adhere to the rule, it is well known that the majority disregard it altogether.

It is not at all necessary to test a clinical thermometer throughout the whole scale of degrees that is marked upon it. In most cases it will be sufficient to ascertain its accuracy at some point between about 97° and 104° F. But, if time is not pressing, it is best to make at least *two* tests, one at a temperature between about 97° and 102° F., and one at a few degrees higher. If a thermometer agrees with the standard at both points within *one-fifth* of a degree it may be regarded as sufficiently accurate for all practical purposes. Any that agree with it exactly, or within one-tenth of a degree, may be put aside as particularly accurate, and these may, of course, be sold at a higher price with a corresponding certificate.

Now, if only *one* clinical thermometer, or *only a few*, are to be tested, this may be done simply by first shaking down the "index" in all of them and immersing them with the standard—best tied together—in a rather large volume of water at the proper temperature. If the thermometers are inserted cold, there will, of course, be a "cold wave" produced around them, which will last until the temperature has become equalized by diffusion or by stirring. If the volume of water was large, the final result will not vary by any appreciable degree from the theoretical one, because the stored-up heat in the volume of water practically neutralized the slight chill introduced by the few cold thermometers.

In testing a *large* number of thermometers, however, at the same time—say one or several gross,—another method must be adopted, one that will avoid, as much as possible, the production of the "cold wave" and the consequent chilling off of the water. The following has been found by long experience to be the most simple and reliable mode of procedure:

First separate the thermometers which are to be examined into "high" and "low" ones, according as the index or registering column stands high or low. All "high" ones must be first manipulated so that the index is brought below the degree at which the test is to be made. This may be done by shaking them either singly or in bulk, in the latter case preferably enclosed in a bag or wadded box, or, more expeditiously, by putting them in a centrifuge, such as is used for urinary or blood examinations, and giving them a few rather gentle twirls, just sufficient to bring down the index as far as required. Prolonged or violent twirling must be avoided, as it is apt to ruin the "index." Fill two vessels of suitable capacity (see further on) with water, one (A) at a temperature about *one degree* lower than that at which the thermometers are to be tested, and the other (B) with water at the latter temperature. It is not necessary to be very exact as to either temperature, as long as that in vessel A is about a degree lower. The standard thermometer which accompanies the thermometers to be tested will indicate what the exact temperature is. Place all the thermometers, together with the standard, upon a wire frame, or other suitable support, permitting a free circulation of the water around them, and immerse the frame into vessel A, which should contain a considerable volume of water, say about five gallons when several gross of thermometers are to be tested. The volume in the vessel B may be smaller. Allow the thermometers to remain in A during about five minutes, which will be sufficient to bring them all up to the temperature of the water. Meanwhile examine the temperature of the water in B, and, if necessary, adjust it so that it is about one degree higher than in A, stirring well to insure homogeneity. Then raise the frame holding the thermometers out of vessel A and at once transfer it to B standing close by, moving it up and down in the liquid a few times to dispel any currents of unequal temperature. After a lapse of five minutes remove the frame and examine the thermometers, if necessary, with a lens. They may now be arranged in groups, according as they entirely agree with the standard, or differ

from it by one-tenth, or one-fifth of a degree. Any that show a greater difference should be tested once more to make sure that no errror of manipulation has interfered. If they still show a deviation of more than one-fifth of a degree they should be rejected.

The same operation is then gone through for another point on the scale, and those that finally pass this test are again arranged into groups, as before. Of course, those that stand both tests equally well are the best and most valuable ones.

Some thermometers have the peculiarity of apparently registering correctly, but losing their register or index more or less rapidly when withdrawn from the source of heat. For this reason it is necessary to re-examine them twenty-four hours (or, if time is available, after a longer interval) after each of the before-mentioned tests, when they should be found to offer the same reading as when they were first examined. A retrocession of the mercurial index by as little as one-tenth of a degree renders the rejection of the respective thermometer advisable.

A further classification of the thermometers that have successfully passed all the tests may now be made, to ascertain their *sensitiveness*. For this purpose they are once more (but only once, at any optional part of the scale) tested as before described, and removed from the warm water after an immersion of an exactly known period of time. For instance, those that are found to have attained the correct temperature (according to the standard which, if sluggish, may have been previously inserted for a sufficient length of time), after the lapse of sixty seconds or one minute, may be set aside as *one-minute* thermometers. Similarly, there may be separate groups of 2-, 3- (or more) minute thermometers, which will often be found useful, as many purchasers lay value on the time within which a thermometer responds.

In making contracts for clinical thermometers there are many features which permit an exact definition or description, so that a control of the articles delivered is not difficult. The only feature that is not definable or controllable is the age or ripeness of the thermometers. Nothing beyond the word of the maker can tell whether they had been allowed to become seasoned or not. It may be of interest to some of the readers of this paper to know what conditions are prescribed for the clinical thermometers bought, under contract, for the public hospitals of the City of New York. The specifications read as follows: " . . . gross of Clinical Thermometers (to be delivered in installments as required), 4-inches long, to be substantially made, with single bulb, plain front, indestructible index, each even degree plainly numbered, the graduation between 94° and 110° F. extending over a space of not less than 1¾ inches, and to be correct within 0.2 of a degree as determined by the standard thermometer of the Departmant." It was found useless to add a condition as to sensitiveness, because among a gross or more delivered at one time there are always found a number which are more sensitive than others, and these are reserved for special purposes. The higher sensitiveness is mainly due to the fact that the glass of the bulb is thinner, for which reason these sensitive thermometers are much more easily broken. For all ordinary purposes a good solid 3 or 4-minute thermometer is much preferable.

Thermometers remaining in stock should be examined again at the expiration of every six months, and a record should be kept of the number and condition of all those which have retained their accuracy after the first six months. After every further lapse of six months, if they are still found to be accurate, their value will have proportionately increased, as they may then be certified in good faith as being seasoned.

NEW YORK, September 13, 1898.

Book Reviews.

Catalago de Plantas Mexicanas Fanerogamos. Arreglado par el DR. MANUEL URBINA, Imprenta del Museo Nacional, Mexico.

This is a large octavo of 487 pages, listing some 3.000 plants, arranged according to the Benthamian system. The botanical names are followed by citations of their publication, important synonyms, the habitat, locality where collected, with the names of the collectors and their collection numbers, when any. In many cases common names are appended. No systematic attempt appears to have been made to fix upon the accurate name, various leading authorities having been followed, with results not altogether consistent. The publication, however incomplete, must find an important use.

H. H. R.

Urine Analysis by the Pharmacist.

By George C. Diekman, Ph.G., M.D.

Introduction.

The subject of urine analysis is recognized as one of great importance by both the pharmacist and physician. The physician of to-day frequently calls upon the pharmacist, if he possesses the necessary knowledge of the subject, for aid and assistance, while the pharmacist finds such knowledge a just and legitimate source of income, which may be made a considerable one in time. Such will be the case as soon as the pharmacist acquires the requisite knowledge and skill to carry out the necessary reactions, and makes it known among medical men that he is prepared to do such analyses. It is certainly a field that should appeal to the pharmacist, as it is not likely to be invaded by patent medicine dealers, department stores and the like. The limited expenditure required for apparatus and chemicals not already within his reach make it possible for the pharmacist of limited means to undertake such work. It is quite unnecessary that the practitioner be acquainted with and be able to recite the multitudinous tests, say for the detection of albumen, the numerous methods for estimation of glucose, or the great number of methods employed quantitatively for estimation of urea, uric acid, etc., etc. It should, on the contrary, be the aim of the operator to thoroughly acquaint himself with a few tests or reagents for carrying out each reaction, which, with practice, will usually yield excellent results. It should be noted here that the results of single test or reaction applied to determine the presence of any one constituent, normal or abnormal, should not be accepted as conclusive, but that another test or reaction should be carried out with another reagent. Most of the best text-books on urine analysis are written by medical men, and a study of them conveys the idea that the subject is surrounded with many difficulties and that great scientific accomplishments are required to successfully conduct such an analysis. One finds arrayed a tabulated list of reagents and reactions for any given normal or abnormal constituent, where several or at least only a limited number would have been quite adequate. On the other hand, it must be just as strongly borne in mind that the subject is not one which permits the application of uncertain methods or the loose application of approved ones ; otherwise the results obtained will be not only valueless, but very often misleading. The pharmacist should carefully refrain from any interpretation of the results of an analysis of a given sample of urine, unless he possesses the requisite medical knowledge and the necessary data regarding the history of the particular case, so that he may draw an intelligent conclusion. Too often the presence of albumen or of sugar in a sample of urine are falsely interpreted as caused by the existence of Bright's disease or of diabetus mellitus, when in reality the causes to which their presence is due are only transitory ones. The physician should be allowed to judge in these cases, as he is familiar with the history of each particular case, and therefore competent to correctly interpret the results of an analysis.

Often the physician desires to have the presence or absence of an abnormal constituent established, without regard to the quantity present ; or he may desire to have the quantity of a normal constituent estimated, as, for instance, chlorides, urea, etc., etc. Many methods, of course, may be employed to establish the desired facts, but it will be well for the pharmacist to accustom himself to certain methods. The continued application of an approved method soon establishes confidence and leads to accurate results ; practice makes perfect, here as everywhere else. In order to get the requisite practical experience, it is well to practice with artificial material where other is wanting. Even in clinics and hospitals it is often impossible at all times to obtain a sample of urine with certain pathological constituents. A few formula will be given further on for preparation of artificial urine, viz., such as contains excessive quantities of phosphate, urea, etc., or such as contains pathological material, viz., albumen, glucose, etc., etc.

In the following an attempt will be made to select only such methods as in general will yield results free from misinterpretation, but which nevertheless may be carried out readily and conveniently. For instance, under tests for detection of albumin the method of coagulation by heat will be spoken of as most serviceable, and always reliable ; although it may be argued that the acetic acid and ferrocyanide method is the

most readily carried out, as it requires no heat whatever. This latter method, however, will often cause a precipitate to appear in a given sample when certain substances derived from certain kinds of food or certain ingested medicaments are present in the urine. It sometimes happens that a sample of urine presents unusual and unlooked for difficulties in the way of analysis, and thus necessitates a consultation of the more extensive books on this subject ; such occasions, however, are rare. It must also not be forgotten that the ingestion of many of the newer remedies, particularly the coal-tar derivatives, cause substances to be eliminated with the urine, which are a source of trouble when certain reagents are applied, and give results quite at variance with the usual. It, therefore, is well to ascertain, wherever possible, whether such substances or any others capable of causing trouble have been administered prior to the elimination of the sample under observation.

PART FIRST.

Composition of Urine.

Normal urine is an aqueous solution of various organic and inorganic substances, some of which possess an acid character, while others are distinctly basic. The bases are represented chiefly by Sodium, Potassium Ammonium, Calcium, Magnesium, Urea, Xanthin, etc., etc., while the chief acids are the following : Hydrochloric, Carbonic, Phosphoric, Sulphuric (this is also found in combination with aromatic alcohols in form of *Ethers*), Uric, Oxalic and Hippuric. Besides these bases and acids several kinds of coloring matter are found, together with traces of a substance belonging to the class of Albumens, and an indifferent substance belonging to the class of Carbohydrates. The two latter are of no importance.

Pathological urine contains besides the normal constituents others of an abnormal character, such as Albumin, Sugar, Biliary coloring matter, Blood, Mucus, Pus, etc. Or the normal constituents may be present in abnormal quantity.

Specific poisons (Ptomaïnes, Toxins, etc.) occur in both normal and pathological urine, to a greater extent, however, in the latter.

The quantity and quality of the ingested food often leads to an increase of the basic or acid constituents of urine without any pathological significance.

The bases and acids present are united in accordance with their chemical affinity and the quantity of each present. Thus a chemical balance is always preserved which under normal conditions is disturbed only by an excessive elimination of certain constituents, such as Uric acid and Urates, causing a precipitate to appear in the urine.

Reaction.—Normal urine usually reacts acid to litmus paper, as under normal conditions the daily elimination of acids and bases is such as results in the formation of acid salts. The bases are inadequate to neutralize all acid, and therefore, besides the normal salts of such acid, acid combinations also are formed, as, for instance, Sodic dihydric phosphate (NAH_2PO_4). However, not all Phosphoric acid is found in combination

in the form of an acid salt, but in urine of acid reaction a certain amount of Di-Sodic hydric phosphate (NA_2HPO_4) alkaline in reaction, may be found. If the latter salt be present in certáin quantity a peculiar condition prevails, that is, such a sample of urine will redden blue litmus paper, and cause red paper to turn blue ; such a reaction is known as an *amphotor* reaction. Urine having a neutral reaction is never found ; neither does free acid occur in urine. Normal urine may react alkaline ; such is often the case during the process of digestion, when much acid is secreted, or it may prevail when the urine contains an unusual quantity of bases, viz., Carbonates after ingestion of such, or ingestion of certain organic substances, examples, Citrates and Tartrates, which in the body are converted into Carbonates.

Pathologically the urine may become alkaline from the reabsorption of alkaline transudates, or after an intestinal hemorrhage (here from the absorption of alkaline salts of the blood), etc., etc.

Appearance.—Normal acid urine is voided clear and transparent, as all the acid and normal salts present in such urine, are soluble in water, and only in such cases where the quantity of water becomes lessened so that it can no longer keep the salts in solution, notably the acid urates, does the urine, although acid in reaction, become turbid. This occurs mostly after elimination, but may occur before.

Normal alkaline urine is usually voided turbid, because the salts present, viz., alkaline phosphates, and carbonates of the alkali earths, are insoluble, or only sparingly so, in water.

Even transparent and clear urine does not contain all its constituents in true solution. Such traces of albumens as may be present are only held in suspension. This accounts for the fact that urine passes through a filter with decreasing rapidity ; at times filtration is even brought to a standstill.

Fresh acid urine contains normally a few epithelial cells and a small quantity of mucus.

Specific Gravity.—This normally may be stated as about 1.018, although under normal conditions it may fluctuate widely, viz., 1.002–1.030. Such variation depends chiefly on the quantity and quality of the ingested solids and liquids and the rapidity with which tissue changes in the body go on. Active muscular exercise favors tissue waste, and consequently increased elimination of nitrogenous material results, with an attendant rise in specific gravity. Profuse diaphoresis, either as the result of food ingested or of exercise, cause a rise in the gravity because the aqueous constituent is lessened and the urine thereby concentrated. Conversely, if large quantities of water be ingested a lower specific gravity prevails. Pathologically the gravity may be raised or lowered ; thus certain diseases, notably Glycosuria, are accompanied by a urine of high gravity, while others, again, show a decided decrease in the gravity. Wherever the specific gravity becomes lowered and the volume of urine remains normal it is

probable that the kidneys, owing to a diseased condition, are not excreting the proper amount of solids.

Color.—The color of normal urine may range from pale yellow to reddish brown; generally it is denominated as a pale yellow or amber-hued liquid.

Acid urine is usually darker than such of alkaline reaction. Foreign coloring matter, such as Biliary pigments, Blood coloring matter (Hæmoglobin), etc., may cause urine to assume a variety of colors. These conditions, of course, are abnormal.

Ingested food or medicaments also influence the color of urine; thus Santonin produces a yellow urine, Log-wood a red-colored urine, etc. Phenols often cause a change in color which only becomes apparent some time after elimination. Black urine sometimes accompanies the disease known as Melanotic Sarcoma.

Optical Properties.—Most samples of normal urine are optically active and are fluorescent, the plane of polarized light being turned to the left.

Pale yellow urine exhibits a blue fluorescence, reddish yellow urine fluoresces green or yellow; while albumen, if present in urine, causes it to fluoresce more intense. Ammoniacal urine fluoresces stronger than undecomposed urine.

Odor.—Normal urine is said to possess an aromatic odor, which is caused by the presence of minute traces of certain organic acid (Phenylic, Taurylic, etc). The intensity of such odor varies much even in case of normal urine, depending on its concentration. Certain drugs, such as Cubebs, Oil of Turpentine, etc., impart, when taken into the system, their characteristic odor to the urine.

Pathologically, urine often possesses a decided ammoniacal odor, due to decomposition, and if voided in this state often affords a clue to certain diseases.

Quantity.—The average quantity passed during 24 hours by a healthy adult is about 1500 cc. (50 fluid ounces) or about 60-65 cc. per hour. This quantity, within the limits of health fluctuates considerably in the same individual at different times, and in different individuals. Most urine is passed in the afternoon, least at night. Loss of liquid through other channels (Diaphoresis or Diarrhœa) diminishes the quantity.

Ingestion of large quantities of liquids increases the amount eliminated. Pathologically, urine may be increased or diminished in quantity, or even suppressed.

Normal urine when exposed to air undergoes certain changes which often in pathological urine have already taken place in the bladder. The changes may briefly be summed up as follows: First, ammoniacal fermentation, which is caused by the action of certain micro-organisms on urea, resulting in the formation of ammonium carbonate ($NH_2 - CO - NH_2 + 2H_2O = (NH_4)_2CO_3$). This change causes the urine to assume a lighter color and a precipitate consisting of normal alkali earth phosphates, ammonio-magnesium phosphate, ammonium urate and calcium oxalate often appears. Second, fermentative changes resulting in the reduction of nitrates to nitrites, and the formation of sulphuretted hydrogen. Third, other fermentions notably such as result in the formation of acetic acid and other volatile fatty acids. The latter two are not frequent.

To be Continued.

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Editorial.

We present to our readers this month a full-page half-tone of "Our Boys in the Navy." Owing to the fact that many of them are in distant ports, it has been impossible for us to secure pictures in uniform. We are glad also to report that since the last issue many communications have been received, but, owing to lack of space in this issue, it will be reserved until next month. "Let the good work keep up," so that we can present, next time, an entire series of reports from the different members of the various classes.

The coming winter undoubtedly will be crowned with many interesting and enjoyable socials for the students. It is the intention of the Association to do everything in their power to interest the "new comers" as well as the "old stagers." The committee in charge are making arrangements, and we can trust to them, as in the past, to make our students remember the enjoyable times they had at the "Old Institution."

I understand that a number of our Naval Apothecaries are beginning to bring the influence of their friends to bear upon the officials at Washington for appointment to the new rank in the navy. Twenty-five Apothecaries are to be raised to warrant officers' rank, with an increased salary. This is the goal they are seeking. The regulations demand, however, that these appointments be made "from the list of hospital stewards now in the service" (June 25, 1898). The "Apothecary" in the Navy is a thing of the past, as the new grade gives the title "Pharmacist," and the balance of the Hospital Corps, U. S. N. will be known as "Hospital Stewards."

Alumni, College and Class Notes.

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Obituary.

Corporal Ernest Rudolph Leonhard, '86, died at Jacksonville, Florida, on September 1, 1898. The immediate cause of death was typhoid fever, contracted while in camp. Leonhard was born 35 years ago, entered the drug business about 1880 and graduated from the N. Y. C. P. in 1886. He was Assistant Pharmacist at the N. Y. Hospital until about 1889, when he accepted the management of the Drug Department of the Vanderbilt Clinic, which was just opened to the public. He was employed in this capacity about five years, winning for himself the esteem of all his superiors. He left the Clinic to join his father in the bleaching of wax, a study of which he was very fond, so much so that he spent a whole year in Europe making investigations as to the chemistry of wax. He was an ardent collector of coins and would usually polish them up so as to have them looking as if new. His collection was a very large one, including some very rare specimens. When the recent war broke out he enlisted in the Second N. J. Volunteers, and was assigned to Company A. Through his worthiness he was soon advanced to a Corporal. While in camp at Sea Girt he married Miss Harriet Augusta Hudson, daughter of a neighbor at Haledon, N. J., where he lived. He had often spoken to the writer about Miss Hudson, and it is to be regretted that he did not live long enough to enjoy the company of a lady so accomplished. He leaves behind a host of friends who join with the family in their sorrow and affliction. His body was brought from Jacksonville, Florida, and the interment took place in Laurel Grove Cemetery on Wednesday, September 7th. He was buried with military honors.

'Tis the wink of an eye, the draught of a breath,
From the blossom of health to the paleness of death.

Classes Prior to '93.

Professor Charles F. Heebner, '81, was heard from, indirectly, during the meeting of the A. Ph. A. He is evidently doing well in and for Ontario College. The Council think well of him. Good for Heebner!

Frank B. Meeker was met in Baltimore; he is looking exceedingly prosperous; medicine is his hobby and he is going to get through the Baltimore Medical College so as to be able to pursue that hobby. When he gets through he intends practicing on Cubans and Porto Ricans (poor Cubans).

Thomas F. Main, '71; Charles Holzhauer, '73; L. L. Staehle, '76; Otto Boediker, '77; E. V. Zoeller, '77; R. C. Werner, '79; Charles S. Erb, '86, and Professor Geo. C. Diekman, '88, were among those present at the meeting of the A. Ph. A., held at Baltimore, Md., from August 27th to September 3d.

A very pleasant little gathering occurred last month under the auspices of Charles Wuensch, '86, and wife. It was the "tin-th" anniversary of their joining hands in the journey of life, and a very pleasant reunion it was. Dances, singing, speeches and recitations caused the hours to pass like minutes. The host and hostess were as happy as on the eventful night, ten years ago, At midnight the guests, numbering about one hundred, partook of a splendid collation, after which dancing was resumed until the "wee sma'" hours. Our friend Wuensch is a firm believer in the motto: "As we journey through life, let us live by the way."

G. Arthur Palmer, another '86 boy, has been heard from. He is with B. F. Quackinbush, on Greenwich street, doing nicely.

Arthur Higinbotham, '92, has gone to Canada. Don't get scared, it is only for a vacation; no money concerned; he'll be back again.

Reinhard Lucke, '84, is back with us again, and his clerk, Henry F. Sasse, '93, has gone to Lake Saranac for a brief respite.

Mills, '89, is back from the mountains. Reynolds, '79, has gotten tired of Paterson, too hot (?). Fred. K. James, '89, is back at his post again. Otto Edler, '86, has left Doherr's; you will find him at Balluff's.

Let us hear from you, boys; don't be afraid to write it; it may not all "go in."

C. S. E.

'93 Notes.

In our last issue we forgot another war hero among our ranks. Dr. Chas H. Schlichter is Surgeon in the Third New Jersey Regiment, volunteers, stationed at Sandy Hook.

Ernst Norton Reusswig made his initial bow to the class of '93 on August 16, 1898. He brought eleven and a-half pounds of brain, flesh and bone with him. Congratulate you, Billy. May he grow up to be as beautiful and wise as his illustrious pater.

Baldwin is located at Columbus avenue and 59th street.

The mercury-footed Horni is now at Chickamauga Park, where he says the conditions are not nearly as bad as the "yaller" journals would have one believe.

Dr. Owsley has located somewhere in New York City, where, we know not, but, we hope, in the right spot.

Dame Rumor says Professor Wm. Hoburg is seen about a certain cottage at Long Branch very frequently. The reason is easy to guess. Send your answers to the Dream Editor.

One of our much married men dolefully said the other evening: "We are constantly hearing of women's rights, but not a word of men's wrongs."

As I have been connected with the JOURNAL for some years, I think it only right that I should have been sent a photograph of the Latin correspondent who blossomed out in the last issue. "Tanny" had better look to his laurels as a Latin scholar.

As we meandered up 23d street one morning recently, and saw the large modern building now on the site of the old college building, we grew sentimental and thought of the march of time and progress. It seemed strange to think that coming classes would not know the old building, that to us, was the fountain of pharmaceutical knowledge.

EUGENE F. LOHR.

'94 Notes.

Through press reports we learn that his honor, the Lord Mayor of London (Mr. H. D. Davies), is about to visit New York. Already we are picturing "our Sergeant," the Hon. T. M. D., sweeping majestically along our prominent thoroughfares under the "distinguished honor."

Brooklyn is the proud possessor of one of our boys, who prides himself on a rheumatic pill of his own formula. The unfortunate individual who takes the treatment is lured on with "six a day" until all his joints have "ball bearings."

E. J. Horton, '94, met with a bicycle accident last month. While riding a tandem with a young lady, near Peekskill, the wheel upset and he received severe contusions of both legs and right arm which laid him up for several weeks. The young lady was not much hurt. He is again at work as manager of Gregory's Pharmacy, Peekskill, N. Y.

Our worthy classmate, Fred Linnig, always has a pleasant smile for everybody. He has been with Dr. O. Seifert for the last two and a-half years.

Our classmate, Chas. Miller, is doing nicely at Fleischmann's in the Catskills, where he is proprietor of a handsome pharmacy. I heard from him some three weeks ago. Our best wishes to him.

Our worthy friend Heinrich (Struck), "My Kingdom for a Salz Staug and a glass of b—," is at present with Dr. Proben, 87th street and Second avenue, where he holds an important position.

'95 Notes.

Because of the scarcity of '95 notes, which is caused by the absence from the city of our reporter, the undersigned will *endeavor to partially* fill his place, which you all know will be impossible, as there are few like "Manny."

Dr. Frank T. Ogden has been rusticating at and near his home, Middletown, New York. He says they continue to send into New York City just as much cow's milk as usual, as he "saw whole carloads being shipped, by gosh!" The Doctor also spent a few days at Manhattan "Booch."

Alexander A. Kellogg is going to become just as good an M.D. as he was a Ph.G. He is taking a course in medicine at the University during the winter and holding down a lucrative position in the office of the Manhattan Beach Hotel.

"Frank Bogardus" Zeh is still at the old stand with Kleinschmidt and "Co." I have been waiting for some time to make this note, thinking that I might be able to give you more interesting information regarding his personal welfare. It hasn't occurred yet, though! Somebody will get an invitation, and thereby I hope to be able to announce it in advance of the happy event.

What has become of our auburn-haired Bannon? For a man who was so interested in class politics I am surprised. Come on, Francis, and let us know what you have been doing.

"Where you go, I follow." Connelly to Kerr. Well, perhaps it is a good thing they travel in pairs. "It don't do any hurt, anyway, do it William?"

Our naval apothecaries may boast of doing dutv for their country, but Miss Agnes P. Mahoney, Apothecary at the Manhattan State Hospital, Hart's Island, will in a short time do battle with "lively germs," not lazy Spaniards, inasmuch as she will go to the front to nurse the sick soldiers, for previous experience as supervising nurse fits our classmate admirably for the position. Miss Mahony "won out" in a Civil Service examination which had about 20 applicants. Good!

Frank S. Morse has for a long time been associated with the Bigelow Pharmacy, 102 Sixth avenue. Couldn't stand Watertown, N. Y., I imagine. Who could blame him?

Ryan and Brown are still polishing nail heads for the Bolton Drug Company, Brooklyn. Ryan is behind the case, and Brown with his "taking ways" manages to take the cash for Ryan's handiwork. Such a combination can't be beat. I hope you get a raise on this, boys! Show it to the Manager.

"Dr. Christopher Niederer, Jr., of Carlstadt, New Jersey," is a fiend with the camera. "Been at it for years." Look out Chris, you may give your age away and then, well anything might happen in Carlstadt, you know.

"I am back to New York, but I didn't write the above. Not much! Yours,

GEORGE."

C. H. Kirchein is still at 132d street and 5th avenue with the Hanover Pharmacy, in which he has an interest. He says that business is fair, with good prospects for winter.

Professor in Bacteriological Laboratory to student:
Question—What are bacteria called in France? Answer—Parisites.
Question—What are they called in Ireland? Answer—Mickrobes.
Question—What are bacteria called in Germany? Answer—Germs.
Question—What are they called in Italy? Answer—Organisms.

G. J. D.

'97 Notes.

Poor Schuyler has left the old college, "He gone done it." He lost his star, lost his head and the affection of all the dear "yellar" girls in 66th street. No more tin boxes on Christmas. No more turkeys from the boys on Thanksgiving. Poor Schuyler "was gone done broke, too." "Dis here poor Col. Schuyler, am all his own fault, too!"

Devine, "Doc Devine of F. A. I." fame, is now with Milhan on Broadway, Manhattan.

"Sage" Becker is at 143 Willis avenue, Manhattan.

Willie White is in Newport for Messrs. Caswell, Massey & Co.

Ferdinand is a gentleman of leisure as ever.

Teddy Kaiser is "on the Bowery," corner Canal street, with the Zimmerman Pharmacy, Manhattan. Remember, "not on the blink."

Mrs. Little is in business with her husband at the corner of 123d and 8th avenue, Manhattan. What's the firm name, Mrs. Little?

Langworthy, of "Opium Poisoning" fame, is in Middletown, N. Y., hustling business.

"Little David" Ronsheim, one of the Brooklyn contingent, is at the Bleecker Street Pharmacy, New York.

Dr. Diekman wishes to be remembered, and says he "wishes the boys were back again." Girls are not in it, of course. E. A. M.

Tommy Evans, of Scranton, Pa., was in town a few days ago. He had an excursion ticket through to Boston, Mass., but the sight of old New York was too much for him. The boys were so glad to see him that they are going to take up a subscription to repay him for the "suspense."

'98 Notes.

I was quite surprised on stopping at P. B. Knapp & Sons, the other day, to find Miss Grebe there. She told me she was releiving for the summer, and that she was getting lots of practical experience, also hard work. We all wish her success.

I was very much pleased to receive a call from Edgar at Manhattan Beach a few days ago. He was looking fine, and is thinking of taking the P. G. course.

I went down on board the Harvard, the other day, and saw Patton. He told me a good many things about the good time he had had, and, as he expressed himself, it had been "a personally conducted summer tour" for him. He says we all missed it by not going. He secured a number of trophies, too numerous to mention here. He is looking for a position as pharmacist in the Marine Hospital. We all wish him success. He called at the College and said good-bye to us before he went to his home in Alabama.

On boarding a Broadway cable car the other day I stumbled over McCoy. He told me that he and Tye were going to study medicine at Philadelphia this fall. We all wish them success.

In the absence of our old friend Eichwort I have been asked to take the place of reporter. It is rather new for me, and, with the assistance of the class, will try to make the Notes of '98 as interesting as possible. Eichwort will favor us, when he returns, with lots of news.

Now, boys, don't forget te send in your money for the class picture.

T. B. F.

'99 Notes.

Rudolph Laüer, of Section III., "of old," who is clerking with Mr. William Weise, corner of 37th street and Seventh avenue, is mourning the loss of his sister, who died after an illness of two months. Accept our heartfelt sympathy, Mr. Laüer.

George C. Roux has accepted a position with Mr. George Oberdorfer, 128th street and Eighth avenue. You're bound to get out in the country, Georgie!

It is with deep regret that I announce to the many friends of Miss Minnie R. Levy, the death of her uncle and preceptor, Mr. Fred. Roen. He died at his home, 356 West 35th street, on August 22, 1898, after a short illness. Mr. Roen owned a pharmacy on Sixth avenue near 30th street, enjoying a prosperous business. The store, however, will not be closed, but will be managed by Miss Levy for the estate. I extend to you, Miss Levy, for the class, most profound sorrow in your bereavement.

VOL. V. OCTOBER, 1898. No. 10.

The Journal of Pharmacology

PUBLISHED BY THE ALUMNI ASSOCIATION OF THE
COLLEGE OF PHARMACY OF THE CITY OF NEW YORK

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The

Journal of Pharmacology,

Devoted to the Advances Made in Materia Medica in its Branches. Pharmacy, Pharmacognosy, Chemistry, Botany, Pharmaco-Dynamics, Therapeutics and Toxicology.

Printed for the Alumni Association of the College of Pharmacy of the City of New York, by The New Era Printing Company, Lancaster, Pa.

VOL. V. OCTOBER, 1898. NO. 10.

Medicinal Plants of New Jersey.*

BY H. H. RUSBY, M.D.

[Continued from July Issue, page 146.]

ORIGANUM VULGARE L.
Thymus Serpyllum L.
Hyssopus officinalis L.
MELISSA OFFICINALIS L.

All these Old World plants occur occasionally as introductions.

*HEDEOMA PULEGIOIDES (L.) PERS. AMERICAN PENNYROYAL.

The mistake is general of calling this Pennyroyal, a name which belongs to the Mentha Pulegium of Europe.

Monarda fistulosa L. Wild Bergamot.

Occasional throughout the State.

MONARDA PUNCTATA L. HORSE MINT.

Rare northward, but very abundant in the southern counties.

*NEPETA CATARIA L. CATMINT.

Very abundant in waste places all over the State.

*Glechoma hederacea L. Ground Ivy.

Common and abundant throughout.

*SCUTELLARIA LATERIFLORA L. SKULL-CAP.

Common throughout the State.

*Prunella vulgaris L. Heal-all.

One of our commonest weeds.

*Read before the New Jersey State Pharmaceutical Association, Summit Meeting, May 18, 1898.

MARRUBIUM VULGARE L. HOREHOUND.

Occasional only.

*Leonurus Cardiaca L. Motherwort.

Common in waste places throughout the entire State.

Teucrium Canadense L. Germander.

Very common in salt marshes and along streams near the coast.

*Plantago major L.

*Plantago Rugelii Dec.

*Plantago lanceolata L.

All these and several other plantains are exceedingly abundant throughout the State.

*CHENOPODIUM AMBROSIOIDES L.

*CHENOPODIUM ANTHELMINTICUM L.

AMERICAN WORMSEED.

Both species everywhere abundant along roadsides, especially in, and in the vicinity of, cities.

*PHYTOLACCA DECANDRA L. POKEROOT.

Everywhere abundant. This ready access to supplies may be of great importance should the importance of using the root in a fresh state become appreciated in the future.

*Polygonum Hydropiper L.

*Polygonum hydropiperoides Michx.

These and other species of Polygonum, known as "Smart-weeds," were formerly very important elements of the materia medica. They are exceedingly abundant in all low grounds throughout the State.

*RUMEX CRISPUS L. CURLY DOCK.

*RUMEX OBTUSIFOLIUS L. BLUNT-LEAVED DOCK.

Both too abundant in cultivated grounds and about dwellings, as well as in waste places and along roadsides.

*ARISTOLOCHIA SERPENTARIA L. VIRGINIA SNAKEROOT.

This is another case of a plant once abundant, but practically exterminated through its collection. Single plants are occasionally found in rich woods throughout the State.

*Asarum Canadense L.
*Asarum reflexum Bicknell. } Canada Snakeroot. Wild Ginger.

Abundant on rocky hills northward and occasional in the south. The second species has been so recently separated that the relative merits of the two are not at all understood.

*SASSAFRAS SASSAFRAS (L.) KARST. SASSAFRAS.

One of the commonest shrubs and trees in fence-rows and the borders of woods. It propagates freely and grows quickly.

*Benzoin Benzoin (L.) Coulter. Spice Bush.

Growing freely in most swampy woods, except among the pine barrens.

Phoradendron flavescens (Pursh.) Nutt. American Mistletoe.
Rather frequent in the southern part of the State.

Euphorbia corollata L.
Abundant in some southern localities.

Euphorbia Ipecacuanhae L.
Abundant in the south and along the coast, in sand.

*ULMUS PUBESCENS WALT. SLIPPERY ELM.
Common in the north, especially in the rocky woods of this section, and occasional in the south. Has largely disappeared as the result of collection.

HUMULUS LUPULUS L. HOP.
Occurs sparingly in numerous places throughout the State, and grows well under cultivation.

*Cannabis sativa L. Hemp.
Occurs occasionally throughout, but is doubtless devoid of active properties.

Urtica dioica L. Nettle.
Of frequent occurrence throughout.

*JUGLANS CINEREA L. BUTTERNUT.
Occasional in the south and common and abundant in rocky woods north, especially hereabouts.

*Myrica cerifera L. Bayberry.
Very abundant except in the north ; especially along the coast.

*Comptonia peregrina (L.) Coulter. Sweet Fern.
Very common throughout on dry, rocky hills.

*BETULA LENTA L. SWEET BIRCH.

*BETULA LUTEA MICHX. F. YELLOW BIRCH.
Both are very common forest trees, and capable of yielding large supplies of bark.

*QUERCUS ALBA L. WHITE OAK.
One of our most abundant forest trees.

*CASTANEA DENTATA (MARSH) BORKH. CHESTNUT.
Growing with the last, and equally abundant.

*FAGUS LATIFOLIA (MOENCH) LOUD. BEECH.
Occasional south and abundant north.

*SALIX. WILLOW.
No less than 16 species occur in the State, many of them in great abundance. Both S. alba L. and S. nigra Marsh. are among the number.

*POPULUS. POPLAR.
Seven species of this genus also occur.

*CYPRIPEDIUM HIRSUTUM MUHL. LADIES' SLIPPER.
Common in rich woods north, and occasional elsewhere. Collection has nearly exterminated it in the vicinity of New York.

*Aletris farinosa L. Unicorn root.
Occasional in the north and abundant in the south, especially in the pine-barrens.

*IRIS VERSICOLOR L. BLUE FLAG.
Abundant in swamps throughout, and very handsome. Could be collected in any desired quantity.

*Dioscorea villosa L. Wild Yam.
Common throughout the State.

*Polygonatum biflorum (Walt.) Ell.
*Polygonatum commutatum (R. & S.) Dietr. } Solomon's Seal.
Both species grow in great abundance in many parts of the State.

*Vagnera racemosa (L.) Morong. False Solomon's Seal.
Growing with the last and equally abundant.

Chamaelirium luteum (L.) A. Gray. Devils Bit.
Occasional northward and common in the southern counties.

*Trillium erectum L. Birthroot.
Rather frequent in the north.

*VERATRUM VIRIDE AITON. AMERICAN HELLEBORE.
Abundant in the middle and northern districts, and occasional south.

Chrosperma muscaetoxicum (Walt.) Kuntze. Fly Poison. Occasional.

*ACORUS CALAMUS L. CALAMUS.
Common and abundant in swamps throughout the State.

*Arisæma triphyllum (L.) Torr. Jack in the Pulpit.
Abundant in the north, occasional southward.

*Spathyema foetida (L.) Raf. Skunk Cabbage. Abundant in swamps.

*AGROPYRON REPENS (L.) BEAUV. DOG GRASS.
Very common in waste places.

*DRYOPTERIS MARGINALE GRAY. MALE FERN.
Abundant in the northern rocky woods; rare southward.

(*Concluded.*)

A Contribution to the Pharmacology of Grindelia Robusta.

[Continued from page 165.]

By John Glassford, Phar.D.

[Contribution from the Laboratories of the College of Pharmacy of the City of New York.]

2.—Chemistry.

Grindelia robusta has been the subject of several more or less thorough chemical examinations. The most complete analysis is that of Clark*

* *Amer. Journal of Pharmacy;* Sept., 1888.

(1888). FISCHER* (1888), LIBBY† (1888), and RADEMAKER‡ (1876), have also examined the drug. Not a little discrepancy, however, is shown in the results thus far attained. Fischer finds an alkaloid and an organic acid, which he names respectively grindeline and robustic acid. These principles Clark fails to find; on the other hand, he does find a saponin-like glucoscide, grindelin, not mentioned in Fischer's analysis. It was in the hope of settling some of the disputed points that the following analysis was made. Dr. W. P. GIBBONS,§ who, as stated above, first introduced the drug, writes that an extract prepared with an alkaline aqueous menstrum seems to act more efficiently than one prepared with an alcoholic menstrum. In the present analysis, therefore, particular attention is paid to the solubility of the isolated principles in official alcohol and in alkaline water. In the main, the plan followed is that of Dragendorff, only such deviations being made as the special nature of the drug rendered desirable or necessary.

Eighteen gm. of the freshly powdered drug were dried to constant weight over pumice stone and sulphuric acid. After fourteen days the loss was found to be 5.25 % of the original weight. This was recorded as moisture.

Five hundred gm. of the commercial drug were taken, the larger stems removed and weighed. Their weight was found to be 15 % of the whole. Assuming, then, that these larger stems are inert—of which assumption we are, however, by no means sure—the percentage of active constituents in the strictly U. S. P. drug (which includes only the leaves and flowering tops) may be calculated from the following estimations by dividing by 0.85.

Two hundred and fifty gm. of the drug were powdered as finely as the soft resin which was present would permit. The powder was placed in a bottle and macerated a week in the cold, with benzin (B.P. 44° C.). The benzin extract was then filtered off, the residue washed with benzin, dried, and reground to a very fine powder. This was placed in an extraction apparatus and extracted with a fresh portion of benzin until a few drops of the percolate evaporated from a watch crystal left no residue. This required sixteen hours.

The contents of the extraction flask were then added to the cold extraction, and the volume of the combined solutions noted. An aliquot portion (150 cc.) of this solution was allowed to evaporate spontaneously from a beaker, and the weight of the residue was ascertained. From this figure the weight of the entire benzin extract was calculated. It was found to be 17.4 % of the weight of the drug.

* *Medical Herald;* March, 1888.

† *New Remedies;* 1876, p. 205.

‡ *Pharmaceutical Era;* Jan., 1888.

§ *Trans. Medical Soc. State of Cal.;* 1874, pp. 116–123.

This residue was a semi-liquid mass, of a clear, light green color, a strongly aromatic odor and an oily acrid taste.

To prove the presence of a volatile oil steam was blown through this extract and the distillate was extracted with benzin. In this way a few drops of the oil were obtained. Steam was then blown through a larger portion of the drug itself. The distillate had a faintly acid reaction, and yielded to benzin a little volatile oil as before. This oil is a light brown colored liquid, of a powerful and fragrant odor.

Another portion of the benzin extract was shaken with acidulated water and the aqueous liquid tested for alkaloids and bitter principles, but with negative results. A small portion of the watery liquid, evaporated from a watch crystal, left a trace of a soft resin soluble in alcohol and dilute ammonia.

The aqueous liquid was made alkaline with ammonia, and again shaken with the benzin extract. This removed an acrid resin, which was precipitated from solution in ammonia water on the addition of an acid. Clark and Fischer failed to find this resin, probably by reason of their following Dragendorff too closely. This excellent authority does not treat possibly present resins in his chapter on substances soluble in benzin. This resin, as thus precipitated, is a yellowish-brown semi-liquid, adhesive mass, of an acrid taste, and producing a biting sensation on the tongue and an irritation in the throat, followed by a numbing sensation which remains for some time. As these properties seem to indicate this resin to be of some importance, a detailed examination of its properties was made.

Though soft at first, it becomes harder on standing. It is readily soluble in benzin, benzol, alcohol, ether and chloroform. Its solution shows a strong acid reaction. It combines readily with the alkalies, both caustic and carbonated, yielding an amorphous compound having all the properties of a resin soap. This soap is readily soluble in alcohol and in water, and produces the same effect on the tongue and mouth as the resin itself; but, owing to its solubility, these effects are produced more quickly and perhaps more intensely. The resin itself is only very slightly soluble in water. The ammonium soap is decomposed on boiling, ammonia escaping and the resin precipitating. An attempt was made to determine whether the acrid properties of the resin are inherent to the entire mass, or whether they are due to some principle which could be isolated. Tannic acid failed to produce a precipitate in the neutral solution of the soap. Neutral lead acetate produced a dense precipitate of the lead salt of the resin. The filtrate from this precipitate, after the removal of the excess of lead with hydrogen sulphide, yielded only traces of the original resin. The precipitate was then decomposed with hydrogen sulphide, the mixed precipitates of resin and plumbic sulphide extracted with alcohol, the solvent evaporated, and the original resin obtained with its acridity unimpaired.

The remainder of the aliquot portion of the benzin extract, from which the resin had been removed was allowed to evaporate. The difference between the weight of the residue and the weight of the entire residue from an equal portion of the benzin extract was noted as acrid resin. It equaled 9.8 per cent. of the drug.

The remainder of the extract was oily in character and of a green color from dissolved chlorophyll. It was washed with alcohol, which removed the volatile oil. The residue on standing deposited white glomerules of wax, which under the microscope were seen to be composed of needle-shaped crystals that disappeared on heating the slide. From these crystals the fixed oil could be partially drained. Its identity was proved by the permanent greasy stain it leaves upon paper. Both the oil and the wax are readily saponified with alcoholic potash ; but in aqueous menstrum the oil saponifies, leaving the wax. The melting point of this wax is about 60° C. It is readily soluble in boiling alcohol, precipitating again on cooling.

Clark (see above) examined it chemically, and states that, judging from the melting point of the isolated base, it is an ester of cetyl alcohol.

The residue left after boiling with alcoholic potassa was white, tough and elastic. It was weighed as caoutchouc, and its weight subtracted from the fatty residue. The figures are as follows : Fatty matter, including wax, fixed oil and a little chlorophyll, 7.34 per cent. ; caoutchouc, 0.26 per cent.

The drug remaining in the extraction apparatus was dried and extracted with ether which had previously been allowed to stand over calcium chloride for three weeks and then filtered and distilled, the first portions only of the distillate being used.

The extraction was continued as before, until a portion of the percolate left no appreciable residue. The solvent was distilled off, and the weight of the residue noted as total ethereal extract. It was found to be 7.2 per cent. of the drug.

The residue was of a greenish-black color and slightly bitter and astringent in taste. It was extracted with acidulated water, which took up a little coloring matter. This acid aqueous solution was then shaken with ether, and the ethereal layer evaporated spontaneously from a beaker. It was at this point that Fischer obtained a crystalline acid which he named robustic acid ; but Clark has not been able to confirm his statement, nor has the writer.

The acid extract was then made alkaline, and again extracted with ether. The ethereal layer upon evaporation yielded a bitter residue. At this point Fischer found an alkaloid, grindeline. Clark does not find it at all, and the writer finds only a few isolated crystals. These crystals under the microscope yield precipitates with Mayer's and Wagner's reagents. This alkaloid—if it is an alkaloid—can hardly be of much physio-

logical importance, however, as the writer took the entire yield from 250 gm. of the drug without any effect whatever.

The resinous residue after the extraction with acidulated water, weighing 7 per cent. of the drug, agrees in its properties with that found by Clark. It is soft when freshly extracted, but becomes hard and brittle on keeping. Its taste is slightly astringent. Clark states its melting point to be 40° C. It is acid in reaction. By neutralizing with an alkali, concentrating and allowing to stand, Clark obtained colorless crystals of cooling saline taste, insoluble in hot or cold alcohol, chloroform or ether. He also found that it cannot be separated into different parts by treatment with portions of alcohol of different strengths; hence he concludes that it is an unmixed resin. It is soluble in benzol, alcohol, ether, chloroform or acetic ether, but it is precipitated from solution upon the addition of benzine, in which it is insoluble. It is insoluble also in water; but, by forming a salt with the alkali, it dissolves in an alkaline aqueous menstrum.

The remainder of the drug was again dried and extracted with freshly distilled absolute alcohol. The total alcoholic extract was 7.07 per cent. of the weight of the drug. The residue after the evaporation of the solvent was a dark brown or black color, and of a purely astringent taste. It was almost entirely dissolved by hot water, which on cooling deposited an amorphous precipitate soluble in ammonia with a deep red color. The residue in the extraction flask was insoluble in hot water, but dissolved readily in dilute ammonia water. The neutral aqueous solution was of a reddish-yellow color, which was much deepened on the addition of an alkali. With ferric chloride it yielded an intense greenish-black color and with lead acetate a heavy white precipitate, but with gelatin or albumen only a slight precipitate was produced—showing the presence of traces only of tannin. The acidified aqueous solution yielded to chloroform only a small quantity of a yellowish coloring-matter, soluble in water and of a slightly astringent taste. In alkaline solution the aqueous extract yielded the same substance.

The aqueous extract of the drug contains a large quantity of a red coloring matter. On evaporation it leaves it as an amorphous, brown mass, insoluble in alcohol but dissolved by an alkali with marked deepening of the color. The neutral aqueous solution has a very slightly astringent and nauseating saline taste. It strikes an intense greenish-brown color with ferric chloride, but does not precipitate; with lead acetate or barium hydroxide it produces heavy, whitish precipitates, the supernatant liquid becoming colorless.

In this aqueous extract, which is decidedly acid in reaction, Clark found a small quantity of tannin, and an acrid substance having nearly all the properties of saponin, which he names Grindelin. In the present analysis

only a trace of true tannin was found, and no saponin. The aqueous extract is, however, in process of more minute examination ; the outcome will be reported shortly.

The results of the above analysis may be summarized as follows :

	Per cent.
Moisture,	5.25
Fatty matter, including chlorophyll,	7.34
Acrid resin soluble in benzin,	9.80
Coloring-matter soluble in ether and water,	0.20
Grindeline (?),	a trace
Resin insoluble in benzin,	7.00
Volatile oil, caoutchouc,	0.26
Tannin like coloring-matter,	a trace
Tannin,	

These results, compared with those of Clark and Fischer, make it highly probable that grindelia is very variable in its chemical constituents. This opinion is consistent with the behavior of the drug in medical practice. Dr. William Murrell* cites it as an example of the extreme uncertainty of some drugs. Regarding the relative efficiency of the alcoholic and the alkaline aqueous extracts, it is a question whether the glucoside, grindelin, of Clark, or the acrid resin above described, is the active principle. This problem is beyond the field of the writer ; but as soon as he can obtain some of the grindelin, if it is obtainable, he will place it and the acrid resin in the hands of those who are competent to determine this point. During the coming year a series of examinations will be made of plants collected at various stages of their growth and kept for various lengths of time. Should he be able to determine under what conditions the drug is efficient, and when not so, thus rendering constant a drug at present uncertain, the writer will feel himself well rewarded for his labors.

In conclusion the writer desires to express his thanks for much valuable advice given him by Professors Rusby, Coblentz, Diekman and Jelliffe during his work.—Merck's *Report*.

EXPLANATION OF FIGURES.

(Referring to the figures published in Vol. V., No. 8, but inadvertently omitted.)

Fig. 1.—Cross-section of the stem of *Grindelia robusta*, magnified 16 diameters.

Fig. 2.—Segment of a cross-section of the stem of *Grindelia robusta*, magnified 175 diameters. E, epidermis ; P, parenchyma ; B, bast fibers ; C, cambium layer ; V, vessels ; T, tracheids.

Fig. 3.—Radial longitudinal section of the stem of *Grindelia robusta*, magnified 165 diameters. P, parenchyma ; B, bast fibers ; F, libriform fibers ; T, tracheids.

Fig. 4.—Powder of *Grindelia robusta*, magnified 165 diameters. A, tip of an awn ; B, bast fibers ; C, portions of corolla lobes ; E, epidermis of stem ; F, fat globules ; G, resin gland on leaf ; L E, leaf epidermis with stomata ; M, inner portion of achene; P, pollen grains ; R, fragments of resin ; S, stone cells from achene ; T, tracheids ; S P, parenchyma from stem ; S C, seed coat ; S V, spiral vessel ; W, wood fibers.

* *Pharmacology and Therapeutics*, Merck's *Report*, 1896.

List of New Remedies.

At the last meeting of the New York State Pharmaceutical Association, Willis G. Gregory and William C. Alpers, as a committee on new remedies, submitted the following list :

Acerdol—Oxidation product of potassa and powdered manganese. Oxidizer, for bleaching, etc.

Acetonal—Aluminium and sodium acetate.

Acid Naphthionic—Remedy in acute iodism, poisoning by nitrites and vesical affections. Dose: 3 to 4 grams daily.

Acid, Sulphoboric—Compound of sulphuric and boric acid; intended for use in the arts.

Acodine—Dental preparation, consisting of aconite, iodine, tannic acid and glycerin.

Adeps Ossium—See Ossalin.

Ajakol—Guaethol; thanatol.

Alapurin—Purified wool-fat.

Alcarnose—Artificial food product. Dose: 10 to 15 capsules (12 grams each) per day, taken in cacao or bouillon.

Algosine—Proprietary analgesic for headaches.

Aminoform—Another name given to hexamethlenetetramine, which is already known under the names "urotropin" and "formin," and is used as a solvent of uric acid in gouty conditions.

Amyloiodoform—Compound of iodine, starch and formaldehyde. Succedaneum for iodoform.

Anesin, or Aneson—Solution of water-soluble acetone-chloroform.

Anilyprin—Compound of acetanilid and antipyrin. Antipyretic and analgesic. Dose: 1 or 2 grams.

Anozol—"Deodorous iodoform." Mixture of iodoform and thymol. Must not be confounded with anusol.

Anta-pa-na — Proprietary demulcent and febrifuge.

Antiarthrin—Proprietary remedy consisting chiefly of salicin, used for gout and rheumatism.

Antibrule—Proprietary analgesic, antiseptic and keratoplastic.

Antichloros—Hematinic, in chlorosis.

Antidyspepticum—A bitartrate containing also sodium carbonate, magnesium, ammonium chloride, and quinine; recommended in sea-sickness.

Antiparasitin — Insect exterminator, containing potassium dinitrocresol.

Antiphytosin—Tuberculin-like preparation used by Prof. Klebs.

Antiseptikon—Dental antiseptic.

Antirheumatin—Ointment, consisting of fluorphenetol and difluordiphenyl, used in rheumatism, lumbago and influenza.

Antithermal—Proprietary febrifuge.

Antitusoin—Difluordiphenyl. Used in whooping-cough as a calmative and hypnotic.

Antivenene—Blood-serum of animals immunized against snake-poison.

Anytin—33 per cent. solution of ichthyol-sulphonic acid and aromatic oily sulpho-compound present in ichthyol.

Anytols—Solutions of camphor, phenols, ethereal oils, and other bodies, obtained by means of anytin.

Apiolin—Preparation from apiol. Not to be confounded with the proprietary apioline.

Arthriticin—Disinfectant.

Asparol—Liquid extract, containing the extractive matter of asparagus.

Aspidine — Substance obtained from male fern. Anthelmintic.

Bararol—Disinfectant.

Benzoidohydrin—Compound of benzoyl iodide and epichlorhydin. Substitute for potassium iodide. 0.13 grams correspond to 1 gram KI.

Benzoylvinoldiacetone-Alkamine—See eucaine B.

Benzylmorphine—See peronin.

Bismutan—Consisting of bismuth, resorcin and tannin. It occurs as a yellow, odorless, faintly-sweet powder, insoluble in water. It has been employed as an antidiarrhœal, particularly in childe.n. In almost every case of poor gastro-intestinal digestion the vomiting and diarrhœa ceased within twenty-four hours after beginning the administration of the remedy. Adults were given doses of from

0.5 to 1 gram per day, and children under two years of age were given teaspoonful doses every two hours of a mixture of acacia containing from 1.5 to 2.5 grams of bismutan in 100 grams. No disagreeable by-effects were observed during its use.

Bismuth Oxybromide—Useful in dyspepsia, associated with nervous derangements, gastric pain and vomiting.

Bismuth Oxyiodopyrogallate—A fine, amorphous, yellowish-red powder, insoluble in water and the usual solvents, and permanent in air and light. It is recommended as a powerful surgical antiseptic, not so readily decomposed by water as the other bismuth preparations heretofore in use as wound-cicatrizants.

Bismuth Sulphocarbolate—Used in irritative dyspepsia, and in fever with offensive breath.

Boro-Formalin—Antiseptic decordant and prophylactic.

Borol—Not to be confounded with boral. Internal antiseptic in croupous bronchitis, septicæmia, erysipelas, etc., and externally in psoriasis, ozena, burns, etc. Dose: 10 to 20 drops for children, and 30 to 50 drops for adults, of a 20 per cent. aqueous solution.

Brenzcain — Pyrocatechinmethylbenzylether, guaiacolbenzyl ether. Occurs in the forms of colorless crystals, soluble in alcohol and in ether, and melting at 62° C. This preparation has been introduced as a succedaneum for guaiacol. It is said to be free, not only from the caustic action that guaiacol exerts on mucous membranes, but also from the other drawbacks of the latter, while possessing all its advantages; for producing local anæsthesia by cataphoresis in dentistry. Investigations are now under way to determine to what extent brenzcain may replace guaiacol and its compounds in tuberculosis. Brenzcain dissolves best in vasogen, and in such solution it may be exhibited like the other guaiacol compounds and in similar doses.

Bromalbumin—Bromine compound of albumin.

Bromo-anilin – See serosine.

Bromopin and Iodopin—The bromine and iodine addition products of sesame oils named "bromopin" and "iodopin" respectively occur as yellow fluids having a purely oleaginous taste and physical characteristics resembling those of fatty oils; they contain 10 per cent. of bromine and of iodine, respectively.

Iodopin is given in doses of from a teaspoonful to a tablespoonful, three times daily, in syphilis and scrofula. In syphilis in children the following emulsion is suitable for administration:

Iodopin	50 grams.
Powdered acacia	25 grams.
Peppermint water	75 grams.
Syrup	30 grams.

Dose: Tablespoonful 3 or 4 times daily.

Bromopin may be given in similar doses and in similar manner.

Bromosinum—Bromine compound of albumin. Used in epilepsy. Antiseptic.

Calphenol—Antiseptic surgical dressing.

Camphenol—Combination of camphor, cresols and phenols. Disinfectant and germicide.

Camphoroxol—Solution of hydrogen peroxide, containing camphor and alcohol.

Captol—Antiseborrhœic and medicinal cosmetic preparation. Used in dandruff, etc.

Carniferrol—Liquor carnis ferro-peptonatus. Iron preparation of meat peptone. Stimulant dietetic.

Carposid—Glucoside from carica, papaya.

Caseiodine—An iodine derivative of casin, having some similarity to iodothyrin (thyroiodin). Caseiodine occurs as a white powder, and contains about 8 to 9 per cent. of iodine in combination. The preparation is soluble in hot diluted alcohol, as well as in dilute solutions of the alkalies, but is insoluble in the ordinary solvents; has an excellent effect in struma.

Catechuoxyquinoldextringluceral—Papin.

Chinaphtol—See quinaphtol.

Chinoral—See quinoral.

Chlorosinum—Chlorine compound of albumin. Used in gastric affections (catarrh and carcinoma).

Chrysarobin Oxidized—A new preparation introduced into dermatological practice. The preparation is obtained by the action of sodium peroxide on chrysarobin suspended in boiling water. It is best used in the following form:

Oxidized chrysarobin . .	2.5–5 grams.
Petrolatum	25 grams.
Lanolin	25 grams.

Chrysoidin—Diamido-azobenzol hydrochlorate. Disinfectant for potable water.

Chrysotoxin—An active principle of ergot.

Cinchonidine Chlorocarbonic Acid Ester—Occurs in the form of colorless, tasteless needles, melting at 191° C. It has a neutral reaction, and is soluble in acids.

Collætina—Proprietary lanolin-rubber adhesive plaster.

Controdolin—Combination of salicylic and phenylic acids with acetamide. Antizymotic, analgesic, antineurotic, anthermic and anodyne. Dose: 0.25 to 0.5 grams hourly, if necessary.

Cordyl — Acetyl-tribromosalol. Used like cordol.

Cosaprin—Acetyl compound of sodium sulphanilate. Succedaneum for acetanilid.

Crealbin—A combination of creolin and albumin, resembling ichthalbin and tannalbin.

Creosote Phosphate—Tricreosote phosphate. Succedaneum for creosote.

Creosote Phosphite—See phosphatol.

Curangin — Glucoside from curanga amara. Used in India as a febrifuge.

Diabetico—Beverage recommended in diabetes.

Dicamphor and **Dicamphendion**—Two new compounds have been obtained by the action of sodium, at a temperature of about 90° C., upon camphor monobromate dissolved in some indifferent solvent, such as tolnol. They are separated by recrystallization from diluted alcohol and then from ligroin. Dicamphor crystallizes in the form of colorless needles, melting at from 165 to 166° C. Dicamphendion occurs as yellow, prismatic needles, melting at 192–193° C.

Dicodeylmethane—Condensation product of codeine and formaldehyde.

Difluordiphenyl or **Entitussin**—A white crystalline powder, of the specific gravity 1.04, and melting at 86° C.; insoluble in water, but readily soluble in alcohol, ether, chloroform or fixed oils. It has a pleasant, aromatic odor, recalling that of dill seed. The preparation is applied, mixed with talcum, 10 per cent. dusting-powder, or in 10 per cent. ointment with wool-fat. Bacteriological investigations made with the ointment showed that its curative properties were not due to any bactericidal power of its own, but more likely to the liberation of some active agent by the decomposing action of the secretions.

Dimethylamido-Antipyrin — See pyramidon.

Dimethyl-Amidophenyl-Dimethylpyrazolon—See pyramidon.

Diphenol—Diamidoxyphenyl. Photographic developer.

Dourahina—Brazilian drug, used as a diuretic and diaphoretic, like digitalis.

Dynamogen—Preparation resembling hematogen, and used similarly in anæmia and its sequelæ.

Eigon and **Eigon Preparations** — Are generic names given to a group of compounds of albumin with iodine in stable combination. The preparations are intended to replace the iodine preparations hitherto used, both internally and externally. The following are to serve as a basis for various medicinal preparations: **Alpha Eigon**, occurring as a light-brown, odorless and tasteless powder, containing 20 per cent. of combined iodine, which is liberated by both acids and by alkalies, more readily, however, by acids; **Alpha Eigon-sodium, Sodium Iodolabuminate**, an almost colorless, odorless, and nearly tasteless powder, containing about 15 per cent. of iodine, combined with the albumin, and soluble in cold, but more readily so in hot water; **Beta Eigon, Peptonum Iodatum**, with properties similar to those of the above-mentioned preparations, but especially intended for use where large quantities of iodine are required to be ingested, and a more ready and rapid absorption required because of weakened digestive functions or of gastric affections.

Eka-Iodoform — Mixture of iodoform with paraform. Succedaneum for iodoform.

Enterorose—Dietetic recommended in gastro-intestinal catarrh. Dose: 8 grams every 1 to 3 hours; children, half the dose.

Epidermin—Ointment for dermatological antisepsis; said to be composed of fluoroxyl and difluorphenyl. Do not confound with epidermin-rothriegel, also an ointment base.

Epidermin-Rothriegel—Ointment base of wax, glycerin, mucilage acacia and water.

Ethylamine Urate—Remedy in gout and vesical calculi.

Eucaine B—Benzoyl-vinyldiacetonealkamine hydrochlorate. Succedaneum for cocaine in ophthalmological practice in 2 per cent. solution.

Eucaline — Proprietary deodorant and disinfectant.

Eunatron — Sodium oleate. Cholagogue. Dose: 0.25 gram, best given in pill or capsule.

Euphthalmin—Mydriatic obtained from amygdalic acid. Used in 2 per cent. solution.

Exol—Dental local anæsthetic.

Extractum Ossium liquidum—See ossin.

Fentozone—An antiseptic mixture intended for cold in the head, etc. It is said to consist of acetic acid, carbolic acid, menthol, camphor, oil of eucalyptus, oil of verbena and oil of lavender.

Fenipton—Concentrated iron preparation for anæmia, debility, etc. May be given subcutaneously or per os.

Ferro-Sodium Citroalbuminate—Hematinic. Contains 30 per cent. ferric oxide. Dose: 1.5 grams for adults; 0.25 to 0.5 gram for children, in soup or syrup.

Ferrosol—Iron and sodium disaccharate. Also known as liquor ferri oxydati natronati saccharatus. Employed in anæmia, chlorosis, etc.

Formacoll—Formaldehyde-galatin.

Formagen—Dental cement.

Formatol—Disinfectant dusting powder, containing formaldehyde.

Formolid—Proprietary antiseptic, germicide and prophylactic.

Garrine—An alkaloid discovered in the bitter bark of *Garrya racemosa* Ramirez, a Mexican cornacea. It is crystallizable, is odorless, very bitter, and readily soluble in water and in alcohol. Nitric acid colors it pink. It possesses the property of increasing the number and depth of the respiratory movements; an intravenous injection of the decoction of the bark may cause death by paralyzing the respiratory centers. The drug acts also on the digestive tract as a bitter tonic. It has been employed in atonic diarrhœa, in the form of tincture, teaspoonful doses being given thrice daily. It is best exhibited, however, in the form of its hydroalcoholic extract, in pills containing 0.1 gram (1½ grains) each.

Gastromyxin—Preparation from the mucous membranes of cattle, used in dyspepsia.

Glandulen—Organo-therapeutic preparation of bronchial glands, combined with milk-sugar, in tablet form.

Glycerin Lactocarbolate—Mixture of carbolic and lactic acids with glycerin. Topical application in laryngeal tuberculosis.

Glycoformal—Consists of a mixture of glycerin and formaldehyde, whereby polymerization of the latter is prevented and an increased effectiveness as an antiseptic secured.

Gonorol—Is the name that has been applied to what is stated to be a highly purified sandal oil prepared by a patented process. The article is described as being entirely free from any deleterious effects on the organism, such as gastric disturbances, kidney affections, etc.

Gossypol—A new crystalline compound from cotton seed. The substance appears to possess both phenol and acid properties, but, as no characteristic derivative has as yet been obtained, no formula can be assigned it at present. From its chemical and physical behavior, gossypol appears to be closely related to certain tannins; pharmacologic experiments have not thus far been made with it.

Guaiacocaine—Dental anæsthetic.

Guaiacol and Quinine Hydrochlorate—Occurring in the form of white, crystalline needles, has recently been introduced as a substitute for guaiacol. It has been stated to be milder in its action than the latter.

Guaiacol Phosphite — Compound of guaiacol and phosphorus trichloride.

Guaiacol-Sulphonic Acid—Is not crystallizable, and cannot be distilled without decomposition. It combines to form salts. No therapeutic reports regarding the acid or its salts are as yet to hand.

Guaiacyl—The calcium salt of a sulphocompound of guaiacol. It forms a grayish-purple powder soluble in alcohol and in water, and insoluble in fixed oils. At 5 per cent. aqueous solution has a pale, reddish-violet color, and is very stable; a 10 per cent. solution deposits somewhat after standing a few hours, but the precipitate readily dissolves on agitation. The taste on these solutions is at first astringent, then slightly saccharine; the solutions are neither toxic, caustic nor irritant; used as an analgesic, in the form of injections, in quantities of 0.5 to 1.5 gram of the 5 per cent. or 1 gram of the 10 per cent. solution. Anæsthesia is said to be complete in five or six minutes.

Guaiaquin—Quinine guaiacol-bisulphonate. Compound of guaiacol-sulphonic acid and quinine alkaloid. Succedaneum for guaiacol.

(*To be continued.*)

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Abstracts.

Strophanthin.—The lack of positive information as well as the contradictions regarding this substance have likewise induced Kohn and Kulisch (comp. Thoms, pp. 144–193) to examine this new drug. After extraction of the seeds with petroleum ether they were dried and then exhausted with 70 p. c. alcohol. The filtered alcoholic extracts were precipitated with basic lead acetate and lead oxide, the filtrate deprived of its excess of lead with sulphuretted hydrogen and evaporated *in vacuo*. After standing several days comparatively pure crystals of strophanthin separated. The yield from Kombé and hispidus seeds was 0.3 to 0.5 p. c. Hardy had obtained 0.7 p. c. After recrystallization from water, the product was perfectly free from nitrogen. Basing their conclusions on the ultimate analysis of this compound as well as that of a commercial specimen of Merck, also on a methoxy determination (found 5 p.c. OCH_3 $= 1OCH_3$ pro $C_{31}H_{48}O_{12}$), they accept Amand's formula, $C_{31}H_{48}O_{12}$ and reject that of Frazer. They also question the glucosidal nature of strophanthin, because after hydrolysis they could obtain no characteristic reaction for sugar. The water soluble compounds after hydrolysis reduced Fehling's solution but yielded no osazone, nor did it ferment. They expect to make a more detailed report with regard to the decomposition products of a strophanthin, also as to the composition of strophanthidin in the near future. [Berichte, 31, p. 514.] *Phar. Rev.*

Eigon.—Under this name Dieterich has placed upon the market three new iodine-albumen compounds.

1. α-Eigon (iodo-albumen), a light-brown powder, odorless and tasteless, insoluble in water, and containing 20 per cent. of iodine, which can be split off by alkalies or by acids.

2. α-Eigon-sodium (sodium iodoalbuminate), an almost white powder, odorless and tasteless, soluble in water, and containing 15 per cent. of combined iodine.

3. β-Eigon (iodo peptone), containing 15 per cent. of iodine and having the same general properties as the preceding compound. It is given when even large quantities of iodine are to be rapidly absorbed, especially in case of weak digestive functions, since the iodine is what might be called a predigested condition.

All three preparations will keep unchanged indefinitely. They are recommended to the use externally in the form of ointments, dusting powders, suppositories, etc. ; for internal use with extract of malt, in pill-form, tablets, or dissolved in syrups, wines or other vehicles.

[Ph. Post, 1898, p. 131.] *Phar. Rev.*

Alinit.—Under this name the Farbenfabriken vorm. Friedr. Bayer & Co. have introduced into the market a fertilizer for grains. According to the manufacturer the *Bacterium Ellenbachii* α is said to be the active constituent of the fertilizer. Stoklaser, however, claims that the organism in question is identical with *B. megatherium*, as demonstrated by pure cultures of both. Alinit, therefore, consists of the spore-bearing cultures of *B. megatherium* de Bary evaporated to dryness with some indifferent constituent. [Chem. Centr.-Bl., 69, I., p. 789.] *Phar. Rev.*

F. H. Knowlton states in *The Plant World* (p. 142) that he saw pine trees growing near Santa Fe, with their roots bathed in a weak solution of muriate of copper, which, on being cut, yielded an oleo-resin of a beautiful emerald hue, showing that considerable quantities of the copper solution had been taken up. H. H. R.

The Mustards Cultivated in Bengal.—By Surg.-Maj. D. Prain, M.B., M.A., Supt. Roy. Bot. Gard. Sibpur, Calcutta. Reprinted from the *Bengal Bulletin* No. 4, as No. 1 (1888) of *The Agricultural Ledger;* 78 pages, with 10 plates and 4 maps.

This pamphlet constitutes a notable contribution to economic botany in more than one way, and it is certain to remain, for a long time to come, our standard source of information concerning the species treated. It is so crowded with valuable information and not less valuable suggestions as to be difficult of review except at considerable length. The task originally undertaken by Dr. Prain was to determine the species of *Brassica* cultivated in the different parts of Bengal by reference to their native

names. This led to the discovery that the names were transposed in many instances, and made the records thus entirely untrustworthy, a state of affairs that is frequently responsible for unintentional substitution and adulteration in the case of many other articles. This attempt was therefore abandoned and seeds were obtained from every available district for planting. From these 139 different lots were cultivated, and the plants carefully studied and compared at every stage of their growth. The botanical literature and the history of the origin and cultivation of the forms were exhaustively studied. In reaching his conclusions, the author held himself entirely free from restraint by the opinions of his predecessors when the latter were clearly at variance with his own observations. The primary object of the study being agricultural, first attention was given to defining accurately the native names, which are given precedence in the classification, the botanical equivalents following.

The genus *Sinapis* is not maintained distinct from *Brassica*. Priority of use is maintained as fixing both the common and botanical names. Places of publication are cited, but the dates are omitted. Little attempt appears to have been made to discriminate between nature's species and those which have resulted from cultivation, provided the specific characters are clear. One of the most important, and not a little surprising, facts established is that not the slightest tendency to intergrading between the species exists. The belief to the contrary is due to the confusion in application of the names above noted. Neither the black nor white mustard, as known to us, are there grown.

The species, as worked out by Dr. Prain, are as follows: *Brassica rugosa* (Roxb.) Prain (= *Sinapis rugosa* Roxb.) is the Pasai. It is an annual, forming first a loose cabbage-like head and then shooting into bloom.

B. rugosa cuneifolia (Roxb.) Prain (= *Sinapis cuneifolia* Roxb.) is the Lahi Sag. It differs from the former chiefly in not forming a cabbage before flowering.

B. juncea (L.) Hook. f. et Thoms. (= *Sinapis juncea* L.) is the Asi-Rai or Italian mustard. It has the same habit of growth as the last, and exhibits a number of varieties.

B. campestris L. is the Colza or Chitagong Mustard. It sends up many tall branches from a cluster of radical leaves.

B. campestris Sarson Prain is the Sarson or Indian Colza. It is a tall annual, its stem growing continuously and branching at the top only.

B. Wapus dichotoma (Roxb.) Prain (= *Sinapis dichotoma* Roxb.) is the Tori or Indian Rape. It is a much-branched annual, not so tall as the others.

B. Wapus esculenta DC. is the Bhutia Moola, of similar habit to the last.

B. Chinensis L. is the China Cabbage or China Gobi. This forms first a loose cabbage. A government order has been issued that it be cultivated in all jail-gardens as a pot-herb, because it is one of the very few things which can be made to yield a crop during the rainy season. H. H. R.

The Agricultural Ledger, No. 6, 1898, is devoted to an account of the use of the seeds of *Oroxylum Indicum* Vent., family Bignoniaceæ, called "Damree Seeds," in the treatment of *Tinca tonsurans* in cattle. The seeds are given internally, apparently with excellent results. They contain 20 per cent. of an oil and a small amount of yellowish, crystalline, bitter principle.

In No. 7 an account is given of the cultivation of black pepper in Assam. The relative quality of black pepper is regarded as being indicated by the weight of the fruits, "corns," as they are technically called. The best Penang and Malabar weigh upward of 6 grams to the hundred. A poor quality weighs about 4½ grams, while Assam pepper weighs but about 3 grams and is exceptionally poor. It is consumed at home and rarely gets to market. It is inferior if collected too young, or left too long upon the vine. It should be gathered just as it begins to ripen. The ripe fruit is sought and eaten by birds. After being gathered it is boiled for a few minutes. If for home consumption the pulp is rubbed off before drying, thus converting it into white pepper. Plants begin to bear at about 3 years, and continue to bear for 20 years. It is possible to grow 500 plants upon an acre and it is possible for each plant to yield three seers of commercial pepper, though one seer is the average yield.

H. H. R.

Strophanthin and Strophanthidin.—Feist calls attention to the different drugs sold under the name of strophanthus and to the different strophanthins. He is also of the opinion that the strophanthin of Arnaud is different from that used by Fraser and by himself.

It was heretofore supposed that strophanthin upon hydrolysis yielded a sugar besides strophanthidin (comp. contradiction on part of Kohn & Kulish, p. —). Feist has examined the water soluble compound more carefully than it has been examined before and comes to the conclusion that it may be a methyl derivative of a sugar containing less oxygen than saccharose. Strophanthidin upon oxydation yields benzoic acid and is, therefore, pronounced a benzene derivative. It is possibly an anhydride of the compound $C_{13}H_{20}O_4$. Inasmuch as the author expects to be able to produce more satisfactory results in a not distant future, it seems useless to discuss the details of this preliminary report.

[Berichte, 31, p. 534.] *Phar. Rev.*

Book Reviews.

The Pests and Blights of the Tea-Plant, being a Report of Investigations conducted in Assam and to some extent also in Kangea. By GEORGE WATT, M.B., C.M., F.Z.S., etc., Reporter on Economic Products to the Government of India. Calcutta, Offiec of the Superintendent of Government Printing. Roy. 8vo., pp. 467, with Index. Illustrated.

The work is much more than its title would indicate, as it contains a vast amount of information on the culture of the tea-plant, its yield, profits and other economic details. H. H. R.

The Principal Poisonous Plants of the United States. By V. K. CHESNUT. Published by the Division of Botany of the U. S. Department of Agriculture.

This important publication is a pamphlet of sixty pages, treating of about fifty poisonous plants, thirty-four of them being figured. They include plants poisonous to domestic animals, as well as to man. The method of collecting information has been to obtain accounts of cases of poisoning from the newspaper clipping bureaus and then to get into correspondence with the parties concerned. Information is supplied concerning the description, distribution and habits of the plants, the manner in which poisoning is likely to occur, the poisonous constituents, symptoms, antidotes and treatment. The method of treatment is not technical or profound, the object being to furnish information to the common people. The greatest value of its distribution is likely to be in the stimulation of people to communicate further information to the Department. H. H. R.

FOR many years the United States Government has been testing the cultivation in this country of certain medicinal plants of recognized commercial value. The following abstracts are based on a report of this work which appears in the Yearbook of the Department of Agriculture for 1897:

Eucalyptus.—Is destroyed by cold in Texas and Florida, but is successfully grown and largely planted in California. There is no longer any doubt that the sanitary value of this tree in wet countries is due, not only to the absorbent power of its roots in drying up wet and marsh lands, but also to a volatile oil and a volatile acid which permeate the atmosphere and contribute to its invigorating and healthy nature.

Cinchona.—Many hundreds of plants have been distributed without successful results, and the cultivation has been given up. Cinchona bark from the East Indies is now so cheap that even West India growers have abandoned the culture of the trees.

Olives.—The Pacific coast now produces olives in paying quantities, but all attempts to extend the culture to the Southern States have resulted in failure.

Tea.—Over 150,000 plants have been sent out, but with no successful results, the climate being too dry to produce paying crops.

Coffee.—It is still a question whether or not it can be grown profitably even in our most southern States.

Camphor.—Is a fine evergreen tree, useful for decorative purposes and growing as far north as Charleston, S. C. Many thousands of trees have been set out with the view of testing their yield of gum. Whether it is better to use the leaves, the twigs, the wood, or the roots, has not yet been determined.

Other plants of interest which are being propagated and distributed are: Pomegranate, Cork oak, Cocoanut Palm, Date Palm, Vanilla, Tamarind, Ginger, Allspice, Licorice, Ceylon Cinnamon, Black Pepper, Gum Arabic and Erythroxylon Coca.

W. A. B.

Essentials of Materia Medica, Therapeutics and Prescription Writing, arranged in the form of Questions and Answers. Prepared especially for students of Medicine, by HENRY MORRIS, M.D. Fifth Edition. W. B. Saunders, Philadelphia. 1898. $1.00.

In this, the last edition of this excellent Quiz Compend, the last revision of the Pharmacopœia is closely followed and the newer remedies since introduced have been added, thus keeping the book up to date.

The system of classification is founded almost entirely on therapeutic lines which for practical work is quite essential. For students, the work will prove of service, since it is concise, well written and accurate.

Alumni, College and Class Notes.

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THE receptions given by the Alumni Association will be given throughout the term on the third Wednesday of every month, in College Library, at 8:30 p. m.

"Baltimore, 1898."

THE recent meeting of the A. Ph. A. in the "Monumental City" will not be forgotten by any of the participants. Aside from the many interesting papers read before the various sections, among which were several emanating from the faculty of our alma mater, were the social features of the meeting.

The Local Committee certainly spared no effort or expense to make the social end of the '98 meeting the peer of all former ones and how well they succeeded those present can vouch for.

The first thing the local committee did was to present each member and delegate with a book of coupons which entitled him to "take in the various entertainments;" each book was numbered and a badge made of bronze representing the "Coat of Arms" of Maryland suspended from a bar bearing the initials A. Ph. A. To complete the outfit there was a silk ribbon, yellow and black (State colors), bearing the same number as did the coupon book. In this way the boys could all be indentified by the number of their badge. But this was not all, to make our stay more pleasurable they had prepared and presented to each an excellent volume of views in and around Baltimore, together with a history of the city. Armed with the above we were certainly enabled to see Baltimore, especially inasmuch as the Committee had induced the Mayor to extend to all the freedom of the city.

On the evening of the first day the President of the Association received the members, delegates and the ladies, which reception was followed by a splendid band concert, together with singing and recitations. A collation was served about 11 P. M.

On the afternoon of Tuesday a tally-ho, several carry-alls and any number of carriages were provided in which the party were taken out to Druid Hill Park which almost equals our own Central Park. On the return trip we were shown through the newer parts of Baltimore, taken through the smaller parks and then down Broadway through Old Baltimore, as they call it. The next day, Wednesday, was the "gala day." The programme announced "a sail down Chesapeake Bay on the iceboat Latrobe." Everybody felt highly elated at the thought of having a sail on an iceboat, the heat had been so oppressive, but they were doomed to disappointment; the iceboat was the "hottest thing in town;" talk about the "Alumni radiator"—couldn't touch it. However there was the local committee again; soda, ginger ale, lemonade, even beer was dispensed to the thirsty excursionists. The sail down the historic Chesapeake, passing Fort McHenry and the ground where was written that song of songs, "The Star Spangled Banner," was a matter of two hours, during which time we were treated to oysters, terrapin, soft-shell crabs and other sea foods galore. Arriving at Annapolis the first place visited was the state capitol, which is built on a hill about in the center of the town. This building contains the room in which General Washington relinquished his commission as Commander-in-chief and bade farewell to his officers.

This room is now used as Senate chamber and in the various desks were copies of "A Law to Regulate the Practice of Pharmacy in the State of Maryland." After the inspection of the building, and while waiting for the photographer to take a group picture, the Local Committee presented Col. Wm. H. Lore with a beautiful field glass to partly repay him for his good offices in behalf of the committee. He accepted it with thanks and made a pretty little speech.

The group picture taken just in front of the Capitol was a success and your committee have hung a copy of it in the Alumni Room at the College.

Hardly had the picture been taken when the cry ran like fire up the hill—"Cervera is down the street;" so down the street the crowd went and had the honor to shake hands with the distinguished Spanish prisoners. Thursday there were receptions galore by the "Maryland Club," the "Baltimore Club," and by President-elect Dohme. I tell you boys, Dohme did it up "brown." But Friday night capped the climax; they "trolleyed" us all over town and finally took us to Electric Park; while there we were treated to a genuine vaudeville, to *good* music, to fireworks, and how some of the boys would have liked the horse race, betting ran high, so they would have been in their element.

Now all this, mind you, was doled out to the members, delegates and their ladies without expense, and the Local Committee was untiring in its efforts to please all at all times, so don't you think you should give "three cheers for Baltimore and the Local Committee."

'95 Notes.

The Aquaro Brothers are still conducting their store at the southwest corner of Spring and Sullivan streets, while another brother, who graduated last spring at the College of Physicians and Surgeons, is practicing medicine in the vicinity.

Albert David Lurch, who took the degree of M.D. at the Bellevue Hospital Medical College on the 9th day of May, 1898, just three years after taking the degree of Ph.G. at the C. P. C. N. Y. has gone to Pennsylvania to practice one or both professions (?). May he succeed as well in his future career as he has succeeded in his studies.

Henry A. Steinach, one of our honor men, formerly with Ostrewicz, of West Broadway, has acquired by purchase the proprietorship of the drug store at 870 2d avenue below 47th street. He reports very favorably of his purchase.

Herman Schmelz, formerly with Bendiner & Schlesinger at 10th street and 3d avenue, but recently with Balluff's Pharmacy at Columbus avenue and 84th street, has accepted a new position in the store of Wm. Luppman at No. 440 Columbus avenue, at the corner of 81st street, Manhattan Borough. The store was formerly owned by Ammon.

Joseph P. Meighan, formerly in business with his brother, Lawrence J., at Courtlandt avenue and 151st street, has resigned his position as manager of the store on 2d avenue near 47th street, formerly known as Bayrhoft's Pharmacy.

'97 Notes.

Dr. Gordon Hager, formerly "Kid" Hager, of '97, honored me with a visit recently. He has become acquainted with much dignity in his new calling, and his beautiful face still charms the maids, I notice. That boy is bound to shine.

Our Charlie Underhill just returned from his vacation with the usual full supply of absolutely new fish stories.

"Willy White just returned from Newport, where he has been for Messrs. Caswell, Masky & Co. He is going to be at C. M. & Co. 47th street Store." Oh! he looks just lovely, some of the girls said the other evening. Must be so if the weaker sex have discovered that.

"Little Davy Ronsheimer is with Mr. August Uhl," Cotton Exchange Pharmacy, corner William and Exchange Place, not, as erroneously stated, in the Bleecher street Pharmacy. Oh! that Davy will be a broker some day yet.

Edward G. Mimecke will be with the Fischer Chemical Importing Co., 14 Platt street, after October 10th, in interest of part of their city work.

Kilian says he is working. I wonder where. It must be a mistake.

They say there is an addition to our genial class president's family. How about it Frank?

"Have you seen, Morey?" I am often asked. I believe Bloomingdale has claimed the poor boy at last.

"Teddy" Kaiser claims the Bowery for his address now. Says he is very much in evidence there. No doubt. Such a nice young man. Too bad he drinks [H_2O].

Kinskel is with Kinskel, 72 Delaney street. "Little Iky" is said to be working hard.

EDWARD W. MINIECKE.

Notice.

Second and third-class mail matter is being held at the College for the following students. Will be remailed upon request by sending proper address and postage to cover same, viz :

E. M. Lougee,	D. F. Wettelin,
B. Pepling,	S. J. Weidenhamer.
J. C. Wessell,	

Diplomas and certificates for graduates of class of '98 will be ready about September 26, 1898.

'97 Notes.

Help! Help! Help! Now, boys, as you are aware, it has been the custom of every class to present a class picture, framed, to the Alumni Association. I think that you will all agree with me when I say that we ought to do the same. Now, boys, let us all chip in with our money and make them a present of our class picture. We certainly have the largest and best picture of any class yet, and we ought to have it enclosed in a frame which will do the picture justice. I hope you will all take hold and send in your cash, anything from a quarter to a $10 bill will be acceptable, and I will see that the picture is framed and presented.

Having a day off, the other day, I wandered down to the Navy Yard, went through some of the ships and on the Iowa, where I fell over our old friend Hildebrandt, who then showed me all over the ship. We talked of our old college days and chums, and he wanted to be remembered to all the boys (it is unnecessary to say the girls). He is looking fine, and is just as happy as when he used to sit in the back row and—well, enough said. He expects to take a trip around the world on his boat about October 1st. When he comes back he will have a lot to tell us. Well, old boy, "enjoy yourself," as our Weary Willy Wild used to sing. I hav'nt heard much from Willy, except that he is on the Celtic. Our naval boys are all O. K., and the class is proud of them.

There is a man from Milwaukee town,
For you he writes these notes, not for cash.
While home he went into a brewery
To see some fine quality "mash."

Now when they had their bodies filled,
His stomach was having a clash.
"'Mein' stomach 'ecke,'" was what he said,
But she, she had all his cash. Q. E. D.

Iso butyl Alcohol,
Ethyl, Methyl Carbinal,
Phenol, Benzol, Oleoresine.
N. Y. C. P. '97!

N. Y. C. P. C. C.

Vice-President Stage leaves for Baltimore on the 28th to resume his course in the B. M. C. At present he is with his brother in the latter's store on 7th Avenue and 58th street.

President Pond reports having made several interesting trips this season. Upon one of them our genial secretary (Alumni), Mr. Hoburg, was visited.

L. G. B. Erb relates many pleasant incidents of his Pennsylvania trip. He was accompanied by Swainer (B. C. P.) to Philadelphia, and, although the roads were in bad condition, they made excellent time.

Notices of club runs are now being sent to all members; if you do not receive yours, the Treasurer will tell you why.

VOL. V. NOVEMBER, 1898. No. 11.

The Journal of Pharmacology

PUBLISHED BY THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHARMACY OF THE CITY OF NEW YORK

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Printed for the Alumni Association of the College of Pharmacy of the City of New York by The New Era Printing Company, Lancaster, Pa.

The

Journal of Pharmacology,

Devoted to the Advances Made in Materia Medica in its Branches. Pharmacy, Pharmacognosy, Chemistry, Botany, Pharmaco-Dynamics, Therapeutics and Toxicology.

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VOL. V. NOVEMBER, 1898. NO. 11.

Nomenclature of the Modern Synthetics.*

V. COBLENTZ, PH D.

THE above was the title of a paper presented to the A. Ph. A. in answer to a query as to whether a revised nomenclature was possible of application to the modern synthetic medicinal preparations. It was the object of the author to make a comparative examination of the titles employed at present in order to ascertain if revision was either necessary or possible. Among the vast number of remedies introduced under this head only the true synthetics are considered. The following classification is made :

Group I. True synthetic medicinal products.—These constitute definite chemical compounds such as have been built up from elementary or simpler bodies with a view of introducing certain organic groupings which clinical experience has demonstrated to produce certain medicinal effects.

Group II. Proprietary combinations.—These are chiefly mixtures or combinations of true synthetic products with various adjuvants, serving the purpose of assisting or modifying their medicinal action.

The titles of the compounds belonging under Group I. are divided into two general classes, namely :

CLASS I. CHEMICAL TITLES.

(*a*) Titles of this class express precisely the chemical composition of the compound, as for example, *acet-anilid*, *ethylene-diamine*, *ethoxy-caffeine*, etc.

* Abstract of a paper read before the American Pharmaceutical Association held at Baltimore, Md., August, 1898.

(*b*) Such titles which embrace euphonic combinations of different syllables of the names of bodies entering into the composition of the remedy, for example, *Tann-albin* (a compound of tannin and albumen), *Amylo-form* (combination of starch and formaldehyde), *Sali-pyrine* (a compound of salicylic acid and antipyrine, etc.).

CLASS II. DESCRIPTIVE TITLES.

These are specially coined euphonic titles usually of Greek or Latin origin and partake of a descriptive character. These titles describe in a way either the uses, properties or physical characters of the compound, as for example, Pyoktanin is made up of the Greek words PUON = *pus*, and KTEINO = *to kill;* Thalline from the Greek THALLOS meaning *a green twig*, in allusion to the bright green color produced by the action of oxidizing agents. Loretin, the valuable antiseptic, a derivative of quinolin, is an adaption from Laura, being an arbitrary title. A selection made from a few of the various classes are cited as follows :

CLASS I. ALDEHYDES.

Formalin (Formol or Formatol). Aqueous solution of formaldehyde.

Formo-pyrine A compound of formaldehyde and antipyrine.

Colla-form (Formacoll) (KOLLA = *glue*). A dry compound of formaldehyde and gelatin.

Amylo-form (AMYLUM = starch). A condensation product of starch and formaldehyde.

Chino-form. A condensation product of cincho-tannic acid and formaldehyde, etc., etc.

CLASS II. is not represented.

CLASS I. AMIDES.

Formamide. The amide of formic acid $H.CO.NH_2$.

Thiosinamine. An allyl-sulfo-urea (THEION = *sulfur* + SINAMOREO = *to destroy*). This chemical title refers to the antiseptic properties of a sulfur compound.

Methoxy- also *Ethoxy-caffeine.*

Urea—NH_2—CO—NH_2.

CLASS II.

Somnal (SOMNUS = *sleep*). A chloral urethrane alcoholate.

Symphorol (probably from SYN = *together* + PHERO = *to carry off*).

AMIDO-PHENOL DERIVATIVES.

The following synthetics are derivates of para-phenetidin (C_6H_4-$(NH_2)(OC_2H_5)$), in which one or both hydrogens of the amido group (NH_2) are replaced by various organic acid residues. The introduction of such acid residues materially lessens the toxic antipyretic properties of phenetidin.

The title of several members of this group consists in combining the name of the acid, entire or in part, as a prefix or suffix with "phenetidin," "phenin," or "phen," for example.

Class I.

*Phen*acetin. Acet-p-phenetidin.

*Phen*ocoll. Glycocoll-p-phenetidin-hydrochlorid.

Citro*phen*. Citric acid + p-phenetidin.

Lacto*phenin*. Lactyl phenetidin.

Amygdo*phenin*. Mandelate of p-phenetidin.

Gluco*phenetidin*. Condensation product of p-phenetidin and glucose.

Class II.

Kryofin (KRYOS = *cold* + PHERO = *to carry*). Title refers to its fever-reducing properties.

Malakin (MALAKOS = *soothing*, *mild*), an analgesic.

Sedatin. This title of valeryl phenetidin refers to its sedative properties.

Malarin. Acetophenone-phenetidin citrate ; an anti-malarial.

Class II. PYRAZOLON DERIVATIVES.

Antipyrine (ANTI = *against* + PURETOS = *fever*) among the synonyms we find

Anodynin (AN = *negative* + ODYNE = *a pain*).

Analgesine (AN + ALGOS = *a pain*).

Parodyn (PARODOS = an animal).

Tolypyrine—so called because of presence of tolyl ($C_6H_4CH_3$) groups in place of the phenyl of antipyrine.

Among the various derivatives of antipyrine, we have the following in which the ending "*pyrine*" is retained, the prefix representing the combining body.

Sali-pyrine = antipyrine salicylate.

Pheno-pyrine = compound of phenol and antipyrine.

Reso-pyrine = compound of resorcin and antipyrine.

Ferro-pyrine = compound of iron and antipyrine.

Naphto-pyrine = compound of napthol and antipyrine.

Iodo-pyrine = compound of iodin and antipyrine.

Tussol (TUSSIS = *a cough*) antipyrine mandelate employed in treatment of whooping cough.

QUINOLIN DERIVATIVES.

Owing to the complex nature of the various medicinal derivatives of quinolin, the employment of chemical titles is entirely out of the question, hence class two only is represented.

Diaphtherin (DIAPHTHEIRO = *to completely destroy*). The title refers to the antibactericidal properties of this quinolin derivative.

Quinaseptol (A = *negative* + SEPO = *to putrefy*). A *quin*-olin derivative of antiseptic properties.

Kairin (KAIROS = *an opportunity*). Oxy-quinolin-ethyl-hydrid.

Kairolin (KAIRIN + OLEUM = *an oil*). Quinolin methyl or ethyl hydride, an oily liquid.

Thalline (THALLOS = *a green twig*).

Loretin. Named by Professor Claus, the discoverer of this meta-iodo-ortho-oxy-quinolin-ana-sulfonic acid, in honor of his daughter Laura.

Some Bismuth Organo-Preparations.

Dermatol (DERMA = *skin*). Basic subgallate of bismuth.

Helcosol (ELKOS = *an ulcer*). Basic pyrogallate of bismuth.

Thioform (THEION = *sulfur* + FORMA = *form* (sf.)). A basic di-thio-salicylate of bismuth.

From the examples cited it will be observed that chemical nomenclature is retained in all cases where at all practicable; however, the majority of these synthetic products possess such long chemical titles that their employment is out of the question. No matter what valuable medicinal properties a remedy may possess, its failure or success depends largely upon its title. What would have been the fate of Loretin had its chemical title been preserved, or that of Eucain A, with its chemical title of sixty-two letters? and so on with many others. The medical fraternity and commercial world have no use for medicinal products possessing long, complicated chemical titles; hence the necessity of selecting a convenient euphonic title which is readily retained in the memory.

(*To be continued.*)

The Chemistry of Aloes.*

By Alfred R. L. Dohme, Ph.D.

Aloes is the concentrated juice of the plants of the genus *Aloe*, principally the varieties *Aloe socotrina*, *Aloe ferox*, *Aloe plicatilis*, *Aloe vulgaris*, *Aloe Africana* and *Aloe Perryi*. Strange to say, the much-talked-of and official Socotrine aloes does not grow on the island of Socotra, this variety being *Aloe Perryi*, named after our famous Commodore Perry, who observed it on the island in 1878. Commercially speaking, the varieties of aloes are Socotrine, Curacoa, Barbadoes, Natal, Cape and Indian aloes.

* Read at the last annual meeting of the Maryland Pharmaceutical Association.

In England they prefer Barbadoes aloes ; in Germany, Cape aloes, and in this country, Socotrine and Curacoa aloes.

A correct and reliable division and classification of the varieties of this important drug is as yet only a wished for but not by any means realized fact. Much of the Socotrine aloes we buy, and, apparently knowing, labelled "True Socotrine Aloes," is a mixture containing various varieties, and no doubt largely Curacoa aloes. As we all know, Socotrine aloes costs about 25 cents a pound, while Curacoa aloes costs only about 3 cents a pound ; and, as we also know, the pharmacist nearly always calls for and uses the former, thinking the latter a cheap, malodorous substitute. If any aloes can be called not malodorous, and if comparisons of malodor can be made by skilled pharmaceutical olfactory nerves, perhaps it is safe to say that Curacoa aloes is the stronger in odor, although not as unpleasant as Cape aloes. Whether or not the famous saffron-like qualities of Socotrine aloes justify us in investing 22 cents a pound for the saffron aloes is, however, another question, and I would like to ask the many skilled pharmacists seated before me if they always prefer the saffron-flavored aloes because of its saffron or because it is official. If it could be shown that Curacoa aloes or any other aloes is as efficient as its saffron-flavored sister, would they still stand by the United States Pharmacopœia and pay 22 cents tribute to the latter o. to the saffron flavor? I certainly would not.

Drugs have been but little studied, and our standards for the same are necessarily vague and indefinite. When, however, science has taken a drug in hand and given us standards, and thereby upset our former macroscopical and necessarily superficial criteria as to their relative value, should we not accept the results of her revelations and adopt the benefits thereof? We know that aloin is one of the active principles of aloes, and if not the only one, as I shall show, still the main one, and a principle that we all know perfectly well is uniformly efficient and gives us all the results of the drug. If we can show that Curacoa aloes contains as much and frequently more aloin than Socotrine aloes, are we not reasonably certain that the one is as efficient and valuable as the other, for certainly the odor of the aloes has no influence on the lower bowel?

I have made comparative assays of Socotrine, Curacoa and Cape aloes, and have found that they contain approximately the following relative amounts of aloin : (m. p., 103° C.) Socotrine aloes, soft in monkey skins, 7½ per cent. average of 3 assays. (m. p., 110° C.) Curacoa aloes, hard and livery and of a light chocolate color, 18.5 per cent. in 3 assays. (m. p., 107° C.) Cape aloes, hard, glassy and black in color, 4½ per cent. average 3 assays. Inasmuch as practically all the aloin in this country is made from Curacoa aloes as it is in England from Barbadoes aloes, and we have all found that it is usually efficacious and produces the desired effects, we cannot but conclude in the face of the above assays that no rea-

son exists, as far as we know, why we should not use Curacoa aloes to the exclusion of the Socotrine, especially as it costs only about one-eighth as much. So much for the commercial side of aloes.

T. and H. Smith in 1851, and Stenhouse, Flückiger, Tilden, E. Schmidt, Liebelt and Groenewald since have studied aloes as to the aloin obtained therefrom. The Smiths operated on Barbadoes aloes, and obtained what they called barbaloin, formula $C_{17}H_{18}O_7 + H_2O$. Flückiger, in 1871, decided that the aloin he and Histed obtained from Socotrine aloes was not, as Pareira had stated, identical with barbaloin, but was $C_{15}H_{16}O_7$. From these aloins, notably barbaloin, Tilden had obtained, by the action of strong oxidizing agents such as potassium bichromate, alaxanthin or methyltetra-oxyanthraquinone, thus indicating that aloin was a derivative of anthraquinone. As we all know, aloes contains besides the aloin, quite a quantity of resin, which has, however, as yet not been investigated. Tschirch and his pupils at Bern have been these past four or five years investigating in order the various resins, beginning with tolu, benzoin, peru, etc. He has recently taken up the resin of aloes, and finds it to be like the other resins, an ester or organic salt, made up in case of Barbadoes aloes of cinnamic acid, and one of that peculiar and characteristic class of resin alcohols, which he finds in all resins and has named resinotannols and which he has named aloresinotannol. It is a gray-brown powder of formula $C_{22}H_{26}O_6$, and contains two hydroxyl groups, as he obtained from it a di-benzoyl derivative. The resin of Cape aloes was similarly treated, and yielded the same aloresinotannol; but to demonstrate that the resin was different from that of Barbadoes aloes, he found that the acid in combination with it was not cinnamic but paracumaric acid.

The resin of Socotrine aloes has not been taken up as yet, but the aloin from the three aloes was next considered. Here some most unexpected, valuable and interesting observations were made, and as the result of close observation of a certain color reaction of aloe, known as Borntraeger's tests for aloes. It is this : aloes or aloes solutions, when treated with either benzin or benzene, yield to these solvents a yellow substance which turns cherry-red on the addition of ammonia. It was noticed that Cape, Barbadoes and Curacoa aloes gave the reaction, while Natal and liquid or true Socotrine aloes did not. The color was not due to the aloin or to the resin, as both of these, when pure, did not give it, but to another substance which no one ever thought was contained in aloes, and which was obtained from the latter, or from aloin obtained from the first three kinds of aloes just mentioned. It is emodin, the great laxative, to which rhubarb, senna, cascara, and frangula, owe their laxative properties. It can be obtained from aloin by extracting this with ether, from which it will crystallize, and can be purified by sublimation. Hence the so-called Born-

traeger's reaction for aloin is not, correctly speaking, a reaction for aloin but for emodin ; aloin that has been deprived of emodin not giving the reaction. A test of the emodin obtained from Barbadoes aloes showed that in doses of half to one grain it possesses marked purgative properties, and in smaller doses quite marked laxative properties, and it was shown that this property is due to increased peristalsis of the intestine. It was further shown that solutions of pure aloin, when allowed to stand exposed to the air, develop in a very short time quantities of emodin which were isolated and analyzed. The same result can be obtained by heating aloin with a 1 per cent. solution of caustic potash. Whether the reaction is one of oxidation or of saponification has not yet been determined, but it is believed that the laxative properties of aloin are due to emodin, and that even if our aloin that has been deprived of all emodin is taken into the system the conversion of the same into emodin in its passage through the system is the cause of its lazative property.

While this does not detract from the value of aloin, it much increases our interest in this substance, and accounts for the unusual efficacy and popularity of cascara sagrada, whose active principle, the glucoside purshianin, which it was my good fortune to be the first to isolate, does, as we know easily by saponification, split up into sugar and this same emodin.

The result of this valuable contribution to pharmaceutical science of Professor Tschirch and his pupil, G. Pedersen, will be to stimulate the interest in emodin, and probably to give us a ready means of making it on a large scale.

To sum up the points brought out in this paper : 1. That Curacoa aloes is as efficient, and, being much cheaper, should be used in preference to Socotrine aloes, the greater portion of which, as sold to-day, is made up anyway of Curacoa aloes. 2. That the resin of aloes is an ester or organic salt, and varies according to the kind of aloes, and that the varying constituent is the acid, the alcoholic constituent being aloresinotannol and being the same in both Barbadoes and Cape aloes, the only two thus far examined. 3. That aloin contains emodin, to which its laxative property is probably due. 4. That many laxative drugs, such as senna, cascara sagrada, rhubarb, buckthorn bark, besides aloes, owe their laxative property to this substance emodin or some substance like it, derived from anthraquinone, and homologous or isomeric with it.

Work is now in progress to show the exact relation of anthraquinone to our well-known laxatives.—*Druggist's Circular*, September, 1898.

List of New Remedies.

(*Concluded.*)

Hæmotropin — Fluid preparation of hemoglobin.

Hemosterol—Compound obtained from fresh animal blood.

Homoarecoline — Methyl-tetra-hydronicotinic acid. Succedaneum for arecoline.

Homoarecoline Hydrobromate — Succedaneum for arecoline.

Huminal—Moor extract.

Hydrarguent—A preparation by means of which, it is stated, mercury may be incorporated with fats, to form the official mercurial ointment, within 5 minutes, an addition of 0.5 per cent. being sufficient for making small quantities, large quantities requiring only 0.25 per cent. to accomplish the same purpose. Detailed information regarding the composition of hydrarguent is not yet at hand.

Hydrargyrol—A new antiseptic composed of mercury and phenol. It is described as being in the form of brown-red scales, having an odor resembling that of gingerbread. Its specific gravity is 1.85, and reaction neutral. It is insoluble in absolute alcohol, but quite soluble in water and in glycerin, yielding beautiful ruby-red solutions. In proportions of 1:250 it completely sterilizes bouillons, and, introduced into a growing culture, it precipitates the alkali-toxins. Its solutions are reported to be neither caustic nor even irritant. Experiments made on animals tend to prove hydrargyol to be seventy-five times less toxic than corrosive sublimate.

Hydrogol Hydrosol and **Organosol**—Claimed to be solutions of soluble, metallic, colloidal silver in water and organic solvents. The aqueous solution was named hydrosol, and the solutions in organic solvents, such as alcohol, glycerin, etc., were named organosols, while the name of hydrogol has now been given to the colloidal silver contained in solution. The preparations are intended as succedanea for the silver salts commonly employed, such as actol, itrol, etc.

Hydrastol—Proprietary preparation of hydrastis.

Hydrargyroseptol — Combination of mercury quinosal with sodium chloride. Antisyphilitic.

Hygiama—Aliment resembling cacao, and employed in gastric and intestinal affections.

Ichtol—A mixture of lanolin, iodoform, glycerin, carbolic acid, oil of lavender and oil of eucalyptus. It is intended as an application in itching of the skin.

Iodalbacide—A product free from sulphur and obtained by the action of alkalies on synthetic iodized albumin. It is said to exert analogous, but stronger effects than thyroiodin and other preparations of the thyroid gland.

Iodamyl-Formol—Preparation consisting of formaldehyde, starch, thymol and iodine.

Iodanisol—Antiseptic and local rubefacient.

Iodethylformin—Succedaneum for iodides, for internal use.

Iodocasein — Preparation resembling thyroiodin used in struma.

Iodocrol—Surgical antiseptic. Succedaneum for iodoform.

Iodoformsalol — Mixture of iodoform and salol. Surgical antiseptic.

Iodogallicin—Bismuth oxyiodomethylgallol. Antiseptic, like iodoform.

Iodopin—See bromopin.

Iodospongin — An albuminous substance containing iodine and obtained from sponges; on drying, even when kept from contact with air, it forms a brownish, black pigment. The iodine content amounts to about 8.2 per cent. on an average. Iodospongin has been given to dogs after extirpation of the thyroid gland, and with good results, but no trials have

been made with it on human beings as yet. It is believed, however, that it may be very effective, since it does not appear to be particularly toxic, as iodothyrin has been found to be.

Iodterpin—Combination of terpin with iodine. Surgical disinfectant, and succedaneum for iodoform. A 1 to 20 per cent. mixture with kaolin recommended as a dusting powder.

Iodothyroiodine — Preparation similar to thyroiodin (iodothyrine).

Iodovasol—Combination of vasol and iodine, containing 7 per cent. of iodine.

Iquinin—Proprietary remedy for malaria. Dose: 2 to 10 grains every 2 to 3 hours.

Irisol—Proprietary disinfectant, consisting of 50 per cent. iodoform and 45 per cent. boric acid.

Iron Vitellinate—Preparation of egg-yolk containing iron.

Klemmolin—Preparation of pine tops, poplar buds, etc. Used in rheumatism.

Kresolid—Creosote preparation, used like creosote. Dose: 0.5 gram 4 times daily.

Kresamine—The preparation formerly known as ethylene-diamine-creosol.

Kronethyl—Ethereal extract of Chinese cantharides. Used in gout and neuralgia. Application: 6 to 10 drops on wet compresses.

Kryofin—Methyl-glycolic-acid phenetidin. Antipyretic and antineuralgic. Dose: 0.5 gram (equivalent to 1 gram of phenacetin).

Largin—A silver-albumin compound, the albuminous constituent of which, protalbin, is a peculiar alcohol-soluble paranucloproteid derivative. It occurs as a grayish-white powder of low specific gravity, and very readily soluble to the extent of 10.5 per cent. in warm, as well as cold water, and soluble also in glycerin, blood serum and peptones, yielding clear, yellow solutions, which remain unprecipitated by chlorides or albumin. Largin contains 11.1 per cent. of silver. Its solution has an alkaline reaction, although an entirely neutral one may also be prepared. Largin is credited with bactericidal powers superior to those of any of the silver-albumin preparations, while being free from any irritating properties; used as an injection, varying in strength from ¼ to 1½ per cent., according to the stage of gonorrhœa, three times daily. It was also found to give good results in subacute posterior urethritis of gonorrhœal origin, when employed for some weeks, or even months, in the form of a 0.5 to 5 per cent. solution—most probably because of its mildly astringent action.

Laurenol—Surgical antiseptic.

Laxiquinin—Compound of iquinin with laxatives.

Lianthral—Also known as extractum olei lithranthracis is a coal-tar extract obtained by the aid of volatile solvents. It has been placed on the market in the form of an ointment in combination with casein ointment. Details regarding its properties are not yet to hand.

Linadin—Organo-therapeutic preparation from the spleen.

Limanol — Preparation from Liman mud, and recommended in rheumatic affections.

Linonine—Substitute for cod-liver oil.

Lipase—Ferment from blood serum.

Liquor Aromaticus—Mixture of oils of lavender, cloves, cinnamon, thyme, lemon, mace and bergamot, with alcohol. Used as a collyrium, and also in rheumatism.

Liquor Carnis Ferro-Peptonatus—See carniferrol.

Liquor Ferri Oxydati Natronati Saccharatus—See ferrosol.

Liquor Ferri Vitellini — Ferruginous preparation of egg yolk. Substitute for cod-liver oil.

Liquor Iodosini—Solution of iodosinum, containing 0.25 per cent. of iodine.

Lorenit—Paraiodoana-oxyquinoline ortho-sulphonate.

Lupetazine—Another name for dimethylpiperazine, also known as lycetol. It forms a white, crystalline powder, and is

used as an antipodagric and antirheumatic, similarly to piperazine.

Lysitol — A preparation resembling lysol in appearance as well as in power to kill bacteria and spores, but being considerably cheaper.

Maclayin—Glucoside from illipe maclayana. Powerful local irritant.

Mayol—Meat-preservative, said to be a mixture of ethyl and methyl alcohols, boric acid, glycerin and ammonium fluoride.

Medol—Photographic developer.

Menthoxol—Solution of hydrogen peroxide, containing menthol and alcohol.

Meta-Dioxynaphthalin — Naphthoresorcin.

Methylglycolic-Acid-Phenetidin — See kryofin.

Methyl-Loretin—Paramethylmetaiodo-ortho-oxyquinoline-anasulphonic acid.

Methylsalol—Para-cresotinic-acid phenyl-ester.

Methyl - Vanillin - Para - Phenetidin — Hypnotic.

Migrol—Proprietary remedy for migrane. Mixture of caffeine, sodium bicarbonate and guaiacetin.

Moliosin—Ointment base, composed of liquid paraffin and wax.

Monochlor-Meta-Cresol—Succedaneum for para-chlorophenol.

Monolene—Colorless hydrocarbon oil.

Myelene—Organo-therapeutic preparation made from red and white marrow. Used in scrofula, rachitis, necrosis and anæmia.

Naphthoresorcin —Metadioxynaphthalin. Antiseptic.

Naphtosalicin—Compound of naphtol and salicylic acid. Disinfectant.

Naphtoxol—Solution of hydrogen peroxide, containing naphtol and alcohol.

Natrol—Proprietary preparation used in photography.

Nervine—Extract of normal gray substance of brain of sheep.

Nervosin—Proprietary nervine.

Njalline—Alkaloid from njalla beans.

Normal Antihydrorrhin—Remedy composed of boric and salicylic acids dissolved with chlorine in alcohol and water.

Nortropinone—Oxidation product of tropigenine by means of chromic acid.

Noxinol—Photographic preparation.

Omal—Trichlorphenol. Inhalant in inflammatory conditions of air passages.

Opianic-Acid-Para-Phenetidin — Hypnotic.

Orexine Tannate—A yellowish-white, odorless powder, having a taste recalling that of chalk, insoluble in water, easily soluble in diluted hydrochloric acid. It is incompatible with iron preparations. Given in chocolate tablets in doses of from 0.25 to 0.5 gram two hours before dinner and supper; an excellent stomachic in pediatrics.

Orthoform—Methyl ester of para-amidometaoxybenzoic acid. Antiseptic and local anæsthetic used in eye affections. Dose : ½ to 1 gram in affections of gastric mucous membranes.

Ortho-Iodanisol—See iodanisol.

Ortol—Photographic developer, similar to amidol and metol.

Ossalin—Adeps ossium. Ointment base made from ox-marrow.

Ossin — Extractum ossium liquidum. Preparation of ox-marrow, employed in diabetes.

Ovadin—Extract of ovaries.

Oxysepsin—Substance similar to oxytuberculin, and used with it in tuberculosis.

Oxytuberculin — Tuberculin changed by oxidation. Used in tuberculosis.

Papin—Not papine. Catechuoxy-chinoldextringlyceral.

Para-Acetamidophenoxylacetamide — White crystals, of somewhat harsh taste, caking at 202° C., and melting at 208° C., form a clear fluid ; slightly soluble in cold water, but readily in boiling water and in alcohol. It is credited with possessing antipyretic properties, while being free from causing any disagreeable by-effects.

Para-Acetamidophenoxylacetamido-chloral — Has a faint odor of chloral,

melts at 196° to 197° C., is but very slightly soluble in cold water or in alcohol, and boiled with these it decomposes into its components. It is claimed to be an excellent hypnotic and sedative.

Para - Amidometa - Oxybenzoic - Acid Methyl Ester—See orthoform.

Parachlorophenol Paste—Remedy employed in lupus. Said to be composed of equal parts of lanolin, vaselin, starch and parachlorophenol.

Para-Cresotinic-Acid Phenyl Ester—Methyl salol.

Paradiethoxyethenyl-Diphenylamidine—See holocaine.

Paraformcollodion—Is a 5 per cent. mixture of paraform and collodion, used as a caustic for small cutaneous swellings.

Parahemoglobin — Preparation made from blood, and containing 5 per cent. of iron.

Para-Phenetidin-Furfurol — Is said to possess valuable antipyretic and analgesic properties, while being non-toxic. No data regarding its therapeutic applications are, however, yet to hand.

Periplocin—Glucoside obtained from *Periploca græca*. Similar in effect to digitalis and strophanthus.

Phaselin--Proprietary surgical antiseptic, and absorptive, stimulant and digestive.

Phenamine—Phenaminum. Name improperly applied to phenocoll.

Phenatrocine — Proprietary antiseptic and analgesic.

Phenosuccin—Pyrantin.

Phesin — Sulpho-derivative of phenacetin. Antipyretic.

Phosphatol—Creosote phosphite. Compound of creosote with the phosphorus ethers of various phenols. Contains 90.5 per cent. creosote.

Phospho-cereal—Dietetic suitable for ingesting phosphates in vegetable form.

Phospho-guaiacol—See guaiacol phosphite.

Piperazine Salicylate—Recently introduced, and is prepared by mixing concentrated, boiling aqueous, alcoholic, or ethereal solutions of 1 molecule of piperazine and 2 molecules of salicylic acid, or by melting the two components together, then dissolving, and recrystallizing. Piperazine salicylate is soluble in water alcohol, and in ether, and melts with decomposition between 215° and 218° C.

Pinapin—Prepared pineapple juice. Digests albumin in vaginitis, tonsilitis, etc.

Pinapin — Fermented banana juice. Used in catarrh.

Piperidine Guaiacolate—Compound of piperidine and guaiacol. Succedaneum for guaiacol and phthisis. Dose: 5 to 30 grains, 3 times daily.

Piperidine Urates—Uric-acid solvent, recommended in gout and gravel.

Protargol—Combination of silver with certain proteins. Bactericidal vulnerary. Used in solution (¼ to 1 per cent.) in gonorrhœa, and in urethritis in the female (5 to 10 per cent.).

Protektin—Specially prepared antiseptic, adhesive paper for surgical use.

Pseudodiphtherin—Proprietary remedy for diphtheria.

Psilothinum—Depilatory in the form of a cerate.

Pyraloxin—Oxydized pyrogallol. Used like, but said to be superior to, pyrogallol.

Pyroctin—Proprietary febrifuge and anodyne.

Quinaphtol — Chinaphtol. Compound of quinine and beta-naphtol alpha-sulphonate. Given in typhoid fever, intestinal tuberculosis, rheumatism, dysentery, etc. Dose: 0.5 gram single, or 5 grams daily, preferably in cachet.

Quinine Chlorocarbonic-acid Ester—See Euquinine.

Quinine Glycerinophosphate—Nervine tonic in malnutrition, accompanied by malarial trouble. Dose: 0.1 to 0.3 gram in pill.

Quinine Guaiacol-bisulphonate — See Guaiaquin.

Quinine Hydrochlorophosphate—Compound of quinine hydrochlorate and concentrated phosphoric acid. Used in malaria and nervous headaches.

Quinopyrin—Solution of quinine hy-

drochlorate (50 per cent.) and antipyrin (33⅓ per cent.) eligible for hypodermic use. Febrifuge.

Quinoral—Compound of chloral and quinine. Antiseptic and bactericide. Dose: 0.5 to 1 gram. In larger doses, hypnotic.

Rheumagon—Normal osmotic, regulating nutrition and waste. Proprietary antilithic, analgesic and sorbefacient. Dose: ½ dram thrice daily.

Rodallin—Thiosinamine.

Roboline — Proprietary general tonic, nerve stimulant and digestive.

Rubitin—Proprietary preparation for massage application by friction. Said to consist of menthol, ether, camphor, soap, laurel oil and oil of rosemary.

Salborol—Combination of salol and boric acid. Antiseptic and antirheumatic.

Salicyl-Creosote Paste — Mixture of salicylic acid, creosote, cerate and wax, prescribed by Unna.

Salitannol—A condensation product of molecular quantities of salicylic and gallic acids by the action of phosphorus oxychloride; is entirely different from salicylid or tannin in its properties; a white, amorphous powder, insoluble in water, ether, chloroform or benzol, and but scarcely soluble in alcohol. It is insoluble in solutions of alkaline carbonates in the cold, but is easily dissolved by caustic alkalies, being again precipitated by acids. It melts at 210° C., undergoing decomposition. Salitannol is said to combine the antiseptic properties of both salicylic and tannic or gallic acids, and is recommended for use as a surgical antiseptic on account of its indifferent chemical character.

Salubrol—Bromine compound of diantipyrin-methylene. Antiseptic, odorless, dusting powder. Substitute for iodoform.

Sanal—Surgical antiseptic.

Santogen — A glycerinphosphate of sodium-casein, intended as a dietetic, readily soluble, of pleasant taste and odor. It contains 10 per cent. of nitrogen. Sanatogen is given in doses of a teaspoonful or more, stirred with a little water, and then added to soup, cocoa, etc., as desired.

Sanose — Casein-albumin compound. Dietetic and tonic.

Savonal—Soap-base, intended as a vehicle in skin diseases.

Serosine — Bromo-anilin. Proprietary antipyretic, aseptic and nervine.

Silver Sulpho-carbolate — Antiseptic, used like itrol and argonin, in eye diseases and wounds.

Socotrine—Veterinary remedy for colic.

Sodium Acetsulphanilate — Antipyretic.

Sodium Arseno-tartrate—Stable, soluble arsenic salt.

Sodium Cacodylate—Used instead of cacodyllic acid in psoriasis, etc. Dose: 0.25 gram. per os, and 0.1 gram daily, subcutaneously.

Sodium Ossalinate—Sodium compound of the acid of ox-marrow. Substitute for cod-liver oil.

Sozalbumose—Antiphthisin.

Sozoborol—Mixture of aristol, sozoiodates and borates, used in coryza.

Sphygmogenin—Active constituent of suprarenal capsules.

Stomatol—Proprietary antiseptic and preservative, composed of terpineol, soap, alcohol, glycerin, water and aromatics.

Strychnine Hydride—A new alkaloid obtained by the action of metallic sodium on a boiling alcoholic solution of strychnine. The new alkaloid was obtained in small quantities. Physiological tests showed it to possess properties directly opposed to those of strychnine. Thus, instead of tetanus, the preparation caused gradual narcotic paralysis, such as is had by morphine, but in a much more energetic degree. On injecting strychnine hydride and strychnine or picrotoxin simultaneously, the effects of each was neutralized, no tetanoid symptoms appearing. Strychnine hydride cannot, however, be used as an antidote to strychnine poisoning, because the narcosis caused by it ultimately results in paralysis of the respiratory centers.

Sulfhydral—Proprietary antiseptic and antiparasitic, in infectious and contagious diseases.

Supradin—Organo-therapeutic preparation of suprarenal capsules containing iodine.

Tamarquare—Remedy for clearing up corneal opacities.

Tannon or **Tannopin**—A new condensation product of tannin and hexamethylenetetramine; a bright-brown, light, slightly hygroscopic, tasteless powder. It is almost insoluble in water, weak acids, alcohol and ether, but it is slowly soluble in weak, alkaline fluids, and contains 87 per cent. of tannin and 13 per cent. of hexamethylenetetramine. Recommended in typhoid and cholera infantum.

Tegmin—Designed as a protective coating in vaccination and surgical operations. It is stated to be an emulsion consisting of wax, acacia and water in the respective proportions of 1:2:3, and containing besides 5 per cent. of zinc oxide, and a small quantity of lanolin. Tegmin, when applied to the skin, forms a smooth, white, elastic coat. It can also be used as a vehicle for medicinal substances.

Tenaline — This is a new preparation prepared from areca nut, with the object of retaining the teniafuge alkaloids arecaine, arecaidine and guvacine, and eliminating, so far as possible, the toxic principle arecoline; of great value as a vermifuge, especially for tapeworms, in the dog and cat. It has the advantage over powdered areca nut that it is much easier to administer, as its bulk is small, and that a purgative is not necessary. On human beings tenaline has not been used as yet.

Tenide—Remedy for diabetes.

Tetra-Iodo-Ethylene — Inodorous succedaneum for iodoform.

Terralin—A new ointment base possessing the advantages of non-liability to decompose or irritate, and considerable absorbent power. The new article to which the name of "terralin" has been given, is a mixture of plaster-of-paris, kaolin, silica, lanolin, glycerin and antiseptics. It has a yellowish-white color, a pleasant, earthy odor, and a consistency like that of lanolin, though more plastic. It is comparatively heavy, and is readily removed from the skin by simply washing with water. (This terralin must not be confounded with the "terraline" on the market for a number of years and used internally as a tissue reconstructive.)

Thycalol—Proprietary dental antiseptic.

Thyrein—Thyroiodine; iodothyrine.

Thyrogen—A new extract of the thyroid gland.

Tribenzoylgallic Acid—Compound of gallic acid and benzoyl chloride. Intestinal astringent.

Triphenamine—Triphenamimum. Mixture of phenocoll, phenocoll salicylate and phenocoll acetate. Intended for rheumatic complaints.

Triphenylalbumin—Compound of albumin with carbolic acid. Nutrient in bacteriological work.

Trophonine—Nutritive.

Unguentum Salvo Petrolia—Ointment base resembling vaselin.

Ursal—A compound of urea and salicylic acid for the treatment of arthritic and rheumatic affections. It is said to be particularly useful where a diuretic effect is desired beside the specific one of salicylic acid. Ursal is regarded as an excellent substitute for sodium salicylate, in similar doses, and as free from unpleasant by-effects.

Usane—Dental local anæsthetic.

Validol—Menthol and valerianic acid have been combined to form a valerianic acid menthol ester recommended as an efficient analeptic and antihysteric; a colorless, limpid fluid of the consistency of glycerin; of a mild agreeable odor and a refreshingly cool, faintly bitter taste. It is a good solvent of menthol, and hence permits the latter to be applied in larger quantity than is contained in validol itself. The remedy is given in doses of from 10 to 15 drops per day, on sugar.

Vanillin - Paraphenetidin — Condensation product of vanillin and para-phenetidin; hypnotic and anti-neuralgic.

Vaseloxine — Preparation resembling vasogen, and used similarly.

Vasol—Ointment base.

Viskolein—Proprietary antiseptic and febrifuge.

Vulneral—Proprietary vulnerary, containing benzoin, myrrh, petroleum, spermaceti, lanolin, boric acid, zinc oxide, carbolic acid, aluminium acetate, camphor and lard.

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To the Druggists of the United States and Canada.

In the daily life of the druggist many questions arise of a practical nature which might be answered by a series of experiments, but which for lack of time, of suitable apparatus, or of other facilities, remain unsolved. Such are troublesome or unsatisfactory formulas, difficult or unsightly prescriptions, questions of the relation of quality to cost of drugs or chemicals, lengthy or complicated processes which might be simplified, and problems concerning all phases of practical pharmacy.

The colleges of pharmacy of the United States and Canada are in a position to work out many of these problems without cost to the druggist, and would doubtless be glad to show their interest in practical matters by undertaking such investigations and presenting their results in papers at the next meeting of the American Pharmaceutical Association.

The Association is in sympathy with the druggists in these matters, and will undertake to find investigators for such questions as may be submitted. To this end all druggists, whether members of the Association or not, are invited to send questions, or descriptions of difficulties concerning any branch of practical pharmacy, improvements desired in specified formulas (wherein a difficulty is described), etc., as early as possible.

Inasmuch as the colleges close in the early spring, and time is required for investigation, an early attention to this invitation is desired. No questions should be submitted later than May 1, 1899. While the committee

cannot agree to solve all problems, and must reserve the right to reject such as are not of general interest, yet with your prompt coöperation in stating what you, as a practical druggist are specially interested in, we hope to make this of personal as well as of general value.

Address all communications to

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On behalf of the Scientific Committee, A. Ph. A.

ABSTRACTS AND REVIEWS.

Laboratory Notes in Pharmacognosy.

R. H. TRUE, in the *Pharmaceutical Review* for August, 1898, reports on Saffron and Lycopodium as follows:

SAFFRON.

Mr. John Arendt, 1897, collected from various sources thirteen samples of Spanish saffron, seven directly from wholesale firms in the West and six from retailers of Wisconsin.

Examination showed several kinds of impurities or adulterations present with great regularity, and others more serious, occasionally.

In every sample a small quantity of styles was observed as slender, yellow, thread-like structures, frequently branching at one extremity into three parts. They are perhaps to be regarded as impurities due to carelessness in picking, and in no case did they form any large proportion of the drug. Several specimens containing approximately 10 per cent. were seen.

Anthers of the crocus appear occasionally as yellowish-brown, narrow bodies split open lengthwise along the edges. These were not observed in any considerable quantity.

Florets of *Calendula officinalis*, the marigold, were found in every specimen examined, but always in small amounts, usually from one to two per cent., in but one case as high as 6.9 per cent. It is difficult to see how these bodies foreign to the plant could find their way in an innocent manner into this drug, and probably they should be regarded as adulterations, significant, however, only when large quantities of saffron are concerned.

Among the occasional adulterations, the so-called "feminella" is found. This consists of florets of the marigold dyed red with red saunders or some other substance. When present, this is plainly put in for a purpose and occurs in large proportions. Two specimens were seen which were adulterated with this article, containing 28 and 30 per cent. respectively.

A more frequent adulteration consists of filaments of vegetable origin heavily loaded with some inorganic substance. In the specimens examined, some calcium salt was used. The filament used to carry the mineral salt is very delicate in its structure and seems to be a part of some floral organ, perhaps. Its structure is different from that of the crocus styles sometimes used, and some other plant is here made use of. This adulteration was found in four specimens and in considerable quantity each time, 21.5, 27.6, 38.9 and 44.6 per cent. respectively.

The ash of saffron thus adulterated was found to be greatly increased. Mr. H. F. Schwarz (1898) has determined the total ash of several specimens and found that whereas the normal ash is about 5 per cent., in the case of samples containing 21.5 and 27.6 per cent. of this adulteration, the ash amounted to 24.87 and 18.67 per cent. respectively.

Specimen.	Stigma .	Calendula florets.	Styles.	Loaded filaments.	Feminella	Ash.
(1) Valencia.......	93.0 . c.	1.0 p. c.	6.0 p. c.			
(2) Alicante	90.0 "	1.6 "	8. "			
(3) Spanish	88.7 "	1.3 '	10.0 "			
(4) Spanish........	92.4 "	0.8 "	6.8 "			
(5) Spanish	48.3 "	1.5 "	11.2 "	38.9 p. c.		
(6) Valencia.......	69.3 "	3.0 "	6.2 "	21.5 "		24.87p. c.
(7) Alicante	40.0 "	2.4 "	trace	27.6 "	30.0 p. c.	18.67 "
(8) Spanish	69.0 "	3.0 "	trace		28.0 "	
(9) Spanish	50.2 "	1.6 "	3.6 p. c.	44.6 "		
(10) Spanish	87.4 "	6.9 "	5.6 "			
(11) Spanish	92.0 "	1.4 "	6.6 "			
(12) Spanish	89.0 "	trace	10.9 "			
(13) Spanish	81.0 "	1.3 p. c.	3.5 "	(sand) 14.1 p. c.		

One specimen of saffron was seen containing about 14 per cent. of red sand.

The above table shows the constitution of the samples examined. Nos. 1 to 7 were obtained from wholesale houses, Nos. 8 to 13 from retail dealers of Wisconsin.

The study of commercial samples of saffron is being continued.

Lycopodium.

Mr. A. L. Reichert (1897) examined a number of commercial samples of lycopodium powder and found that impurities are frequently present. One of those most regularly seen is fragments of the sporangium wall broken off in obtaining the spores. These were not found in any considerable quantity. Pine pollen was seen in one specimen, making up approximately

20 per cent. of the powder. Potato starch was found in two specimens. In one case it constituted about 30 per cent. of the powder, in the other a somewhat less proportion. Of the specimens examined, a large majority were found to be practically free from adulteration.

PHARMACOGNOSTICAL LABORATORY, UNIVERSITY OF WISCONSIN.

How to Make Kumiss.

THE *Diet. and Hyg. Gazette* (August, 1898) gives the following directions for the preparation of kumiss:

Fill a quart champagne bottle to the neck with pure cow's milk; add two tablespoonfuls of white sugar, first dissolving it in a little water by the aid of heat; add also a quarter of a two-cent cake of compressed yeast. Then securely fasten the cork in the bottle and shake the mixture well; place it in a room having a temperature of from 70° to 80° F. for six hours, and finally in the ice-box for about twelve hours. It is then ready for use, and may be taken in quantities varying with the requirements of the stomach and general condition of the patient. The bottle should be opened with great care, on account of the effervescent properties of the mixture, and the latter should be discarded and not drunk at all if there is any curdle of thickened masses resembling cheese, as these indicate that the fermentation has been prolonged beyond the proper time. It should be prepared as required for use. The virtue of kumiss resides in the fact that it nourishes, refreshes, and stimulates with no subsequent reaction from its effects. Kumiss contains some alcohol, with fat, casein, lactic acid, and carbonic-acid gas. The cost is about fifteen cents per quart, including the bottle.

Book Reviews.

A Text-Book of Volumetric Analysis, with special Reference to the Volumetric Processes of the Pharmacopœia of the United States. Designed for the use of Pharmacists and Pharmaceutical Students. By HENRY W. SCHIMPF, Ph.G., M.D. New York, John Wiley & Sons, 1898. Third Edition, Rewritten and Reset.

We have had occasion in a former number of the JOURNAL to commend this volume very warmly. This, the third edition, which retains the main features of the last, with much well chosen new matter added, serves to further increase the value of the work. It is a work eminently fitted for pharmaceutical students and is, we believe, one of the best of the small books devoted to the subject.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By GEORGE FRANK BUTLER, Ph.G., M.D., Professor of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons Medical Department of the University of Illinois ; Professor of General Medicine and Diseases of the Digestive System, Chicago Clinical School ; Attending Physician to Cook County Hospital ; Member of the American Medical Association, Illinois State Medical Society, Chicago Pathological Society and Chicago Society of Internal Medicine ; Fellow of the Chicago Academy of Medicine, etc. Second edition, revised. Philadelphia, W. B. Saunders, 925 Walnut street, 1898.

The necessity for the appearance of a second edition of this excellent work so closely on the heels of the first, proves how widespread has been the recognition of its merits and how nearly it approximates the requirements of both teacher and student. The mean between, on the one hand, the elaborate prolixness, and on the other, the compend-like brevity of most of the other works on the subject, has been struck with a degree of success, in our estimation, not before attained in any text-book on Materia Medica in the language, while at the same time nothing likely to be of importance to either the practitioner or student has been inadequately treated. The introductory chapters in "Pharmacology and Therapeutics," and "Pharmaceutical Preparations" are models in their way and should be read by every student who desires a clear understanding of galenical terms and a knowledge of the methods of preparation of drugs and their products. The work throughout conforms to the U. S. Pharmacopœia, the official titles and preparations being in all cases given, but in addition the new Materia Medica has received ample attention and the chapters on antipyretics and antiseptics are especially complete in their discussions of the modern synthetic remedies. In this edition the chapter on Definitions has been replaced by one on that important but little understood subject the "untoward" or "bye-effects" of drugs, the advances in our knowledge of the physiological action of aconite, strychnine, the antipyretics and antiseptics have been kept pace with, and serum therapy and the therapeutics of nuclein been thoroughly set forth.

The press work is excellent, a feature of especial value to the tyro in prescription writing being the accentuation of all official titles together with their genitive, and in many instances accusative cases, given in full. Altogether, the book is one that it is a pleasure to commend and we cannot too highly praise the lucidity and conciseness of its style or the compactness of arrangement which presents in useful and convenient form a really enormous amount of information.

Alumni, College and Class Notes.

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Legal Notes.

A MOTION was argued in the Supreme Court, August 24th, for the appointment of a Receiver for the alleged copartnership property of Edward H. Adelberg & Co., druggist, 323 Bowery. Leo H. R. Hibbe, plaintiff; Edward H. Adelberg, defendant. Plaintiff is a physician, and claims that under a contract he had with defendant (wherein he was to receive 50 per cent. of the receipts taken in on his prescriptions, prescribed while in the store, and if he left the money, coming to him under the contract, in the business until it amounted to a certain sum, he was to be taken in as a partner) he was entitled to a partnership in the business. Motion was denied.

THE County Medical Society is on the alert for counter prescribers. Edward H. Adelberg was arrested, August 6th, for practicing medicine illegally. In April he engaged Dr. Leo H. R. Hibbe and Henry C. Hibbe to attend patients coming in the store. Henry C. Hibbe's employment terminated in May and Dr. Leo H. R. Hibbe's in June. Thereafter Adelberg engaged another physician and while he was temporarily absent, Adelberg prescribed for several patients. The magistrate held him in $300 bail each, for Special Sessions, on two charges.

A SALE of chloroform to an intoxicated person, who is not shown to be absolutely without mind to the knowledge of the seller, is held in Mississippi, in the case of Myer *vs.* King, to be insufficient to constitute negligence; and the sale of chloroform to a minor, in violation of statute, is held insufficient to render the seller liable for the minor's death from drinking it, if the sale was not the proximate cause of the death.

H. A. H.

Alumni Dinner.

Do not miss the Alumni Dinner, December 7, 1898, at the "Arena." You had better jot down the date in your note book. Also the night of the 25th of January, 1899, Annual Ball of the Alumni Asssociation, Madison Square Garden.

The Committee,

CHARLES S. ERB, Chairman.

Classes Prior to '93.

Many thanks for the many notes sent; cannot get them all in "this trip," but send right along.

Frank C. Stutzlen, '86, went over to Staten Island to convert the Indian (vegetable pills sellers) and others, but the last heard from him he was swimming back to Elizabeth.

Leverty, '89, is in Bridgeport, as is also E. E. Fischer; both of them will be at the alumni dinner on December 7, 1898. They tell me that Fischer takes the frontest of front rows in the shows.

Seraphina Manoghan is now the "power behind the throne" of the "Huckleberry Road." She has graduated again. Ask her for a pass, boys.

Kamlan, '85, is the busiest druggist in Hoboken.

Harlem is but just big enough for Oberderfer, '85. Some day he is going to buy it.

Porr, '85, has rented the corner near his old store and transferred his property thereto.

The "Fatty Acid Radical" is getting opposition. Regnault, '85, is almost up to him.

Staehle, '85, "wheeled" over from Newark and stopped on the way to pay his respects to McGinnis.

Lieberenz, '91, is in Mexico drinking Palque instead of Würzburger.

Koch, '91, is now in partnership with a former Miss, now Mrs. Koch.

Gieser, '91, got tired measuring oiled silk. He's in the *dry* goods line now.

Simon, '86, is in the hat business, just as a side line. Big heads need not want for a fit, he'll do it.

Born, '86, is "dead stuck" on the "Bicycle Girl" especially the Coney Island one. To better enable him to judge them he has bought a store on Bedford avenue, Brooklyn Borough; go by and see him watch them.

Dickinson, '90, is an exception to the general rule, he is still growing; when last seen he had gained half a foot and more to come.

What's the matter with long-legged, goose-necked, bicycle Erb? He's all right; you ought to have been to the christening of his store, Madison avenue and 131st street. But never mind, there'll be another event.

How about our own Eugene? In the last issue he hinted at getting a photo of the Latin correspondent. Is it possible that Lohr doesn't know German when he sees it, not to talk about the other interpolations which were anything *but* Latin.—C. S. E.

'94 Notes.

Herold has recently become the proud father of a handsome child. We congratulate you Hieronimus.

Cards announcing the engagement of Frank Hacey Smith, to Miss Beatrice V. Bretney, daughter of Edwin V. Bretney, are out. They will be married on October 27th, at Lebanon, Ky.

One who is "out for the money" seldom is regarded as a hero; hence, I presume that our friend Averbach is to be considered fortunate, for he recently proved himself to be the right man in the right place, when he succeeded in saving the life of a fair damsel who had swallowed a coin.

Samuel Morris has resigned his position in the Ellison Pharmacy on Fifth Avenue, where he had been located for two years.

Friends of L. G. B. Erb will have just cause hereafter for remarking of his wonderful nerve. Some time ago he conceived the idea of raising a beard, with the result that he now has a growth that will make Dürr look to his laurels. When Chas. S. learned of this move he at once sought a tonsorial artist; hence we will hereafter have to accustom ourselves to a new and novel condition of affairs.

The '94 Reporter chanced to call on the '93 Reporter lately, when he met with the usual Brooklyn hospitality. The modus operandi of the fall campaign, together with other important items, were discussed harmoniously; therefore, we may look forward to good times when the October reception starts the ball a rolling.

CAMP WIKOFF, September 12, '98.

MY DEAR CLASS-MATE:

Will you be surprised at receiving a letter from Camp. I volunteered as either nurse or apothecary during the war, and was called upon by the Government as nurse, but when I applied for leave of absence to Dr. Macdonald of the Manhattan State Hospital I was told that I could not have one. I stood it for ten days and after that I felt such a traitor to let my position stand in the way of helping the suffering soldiers, that I finally resolved to resign and enlist, and doing so, have been assigned to Camp Wikoff.

When the medical officers down here found that I was a druggist as well as a nurse, they asked to have me assigned to the drug store, and now I am monarch of a tent in a drug store. I have had so much drug work for the last two years that I had hoped to have some nursing to do, but I am a soldier now and must obey orders.

Will you hold any mail matter from the College to me, until you hear from me again? Camp Wikoff may be broken up in a few days, and I may be mustered out or assigned to other duty. Will let you know later.

Very Cordially,

AGNES P. MAHONY.

Iso-neo-parrafine,
Morphine-Codeine-Narceine.
Ethyl-methyl-Aldehyde
N. Y. C. P. '95.

'98 Notes.

"Blonde" Seltmann is managing a store at White Plains, N. Y. Bye the bye, old boy, what has become of that red tie the boys used to have such fun with?

A number of our boys have returned this year to adorn their names with the title of Phar.D. (that is they are going to try to and we think they can). They are Wood, Holcomb, F. W. Brown, Justin, Straus, Losee, and E. D. Brown.

We regret very much that none of our young ladies returned, but we suppose they would rather change their names to a Mrs.

Our class will be well represented in the far East, as Hildebrandt of the "Iowa," Wild of the "Celtic," A. F. Eberhardt of the "Alexander," and Richards of the "Cassius," have all started for Manila.

Our long-looked-for diplomas will be ready for distribution in a few days.

Since the last number I have received calls at the College from Wild, Beckary, A. F. Eberhardt, and Jorgenson. They all seem to enjoy themselves serving Uncle Sam, and have no complaints to make against Secretary Alger.

Eickwort, of the "Texas," has gone to join the European squadron.

Jorgenson, of the "Yankton," has gone to Porto Rico, with a party of United States engineers on board to survey the harbors of that island. He expects to be gone all winter.

Gardner and Wells have both started in the College of Physicians and Surgeons, and Schaeffer at Cornell Medical College. I am sure they will be a credit to their profession when they finish. The well wishes of the class are with them in their new work.

I was at the business meeting of the Alumni Association, October 12, and was quite surprised to find that myself and Maffia were the only ones to represent our class. Now, boys, this will not do. We have the largest class, and should have the largest representation at the Alumni meetings.

Quite a number of our boys have not joined the Alumni Association as yet. Better get a move on boys and fall in line.

Austin is somewhere out in Maine managing a store, and wants to be remembered to all the boys, needless to add girls also.

I wish that when you hear of anything that would interest the boys you would let me know about it and I will put it in the JOURNAL. If you see it in the JOURNAL (not New York *Journal*) it's so.

Maxey has gone home to "recuperate strength lost in the whirl of metropolitan life" as he writes it. We always thought our president was a "warm baby," but now we know it officially from him.

Everyone should be in readiness for the Alumni dinner, which I think is to be held sometime in December. Will let you know exact date in my next.

Don't forget to send in your subscription to the class picture for the Alumni Association.

As Eickwort has gone to Europe I suppose I shall have to take this place permanently. I will try and do as well as he did, but that will be hard.

T. B. F.

'99 Notes.

Rumor has it that Otto W. Frankfurter, of Section 2, is engaged to a well-known, handsome and accomplished young lady of our class. While I will not, at present, divulge her name, you may look for a surprise in the next JOURNAL.

Alumni Events, 1898-99.

November 16, Reception, College. December 7, Annual Dinner, Arena. December 21, Reception, College. January 25, Annual Ball, Madison Square. February 16, Reception, College. February 16, N. Y. C. P. C. C. Ball. March 16, Reception, College.

N. Y. C. P. C. C.

President—FRANK N. POND.
Secretary-Treasurer—L. G. B. ERB, 539 East Eighty-eighth Street, New York.
Captain—NELSON S. KIRK.
Dues One Dollar per year, payable quarterly. No initiation fee.

President Pond announces that he will call a meeting to be held in the College on the night of the February reception, when it is to be hoped that a good crowd will gather to offer suggestions for the season's success.

Many prominent members are discussing the advisability of holding a ball this winter to which members of other Metropolitan cycle clubs will be invited. As yet, however, nothing definite has been done.

With the advent of cooler weather, a perceptible change for the better, as regards attendance, is noticed in our scheduled runs. "Glad to have you every time, boys," even if you are not a member.

To Classes '99 and '00 a cordial welcome is extended to all our affairs. We appreciate the strength of our students and are always on the lookout for talent.

VOL. V. DECEMBER, 1898. No. 12.

The Journal of Pharmacology

PUBLISHED BY THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHARMACY OF THE CITY OF NEW YORK

CONTENTS.

Printed for the Alumni Association of the College of Pharmacy of the City of New York by The New Era Printing Company, Lancaster, Pa.

The
Journal of Pharmacology,

Devoted to the Advances Made in Materia Medica in its Branches. Pharmacy, Pharmacognosy, Chemistry, Botany, Pharmaco-Dynamics, Therapeutics and Toxicology.

Printed for the Alumni Association of the College of Pharmacy of the City of New York, by The New Era Printing Company, Lancaster, Pa.

VOL. V. DECEMBER, 1898. NO. 12.

The Chemistry of Sassafras.*

BY DR. CLEMENS KLEBER.

THE character of sassafras, so far as it has been elucidated by scientific investigations, consists practically of the chemistry of the essential oils that can be distilled from the various parts of the sassafras tree, for with the exception of a red matter, termed sassafroid, which is formed in fresh sassafras roots when exposed to the air, and which seems to be an oxidation product of some tannin-like matter, no other derivative of the plant has so far been the subject of chemical researches.

The well-known article of commerce that is called simply oil of sassafras is distilled exclusively from the sassafras roots, and chiefly from the bark of the root, though also some oil, apparently of the same composition can be obtained from the wood of the root. The wood and the bark of the stem contain but traces of oil. On the other hand, there are only a very few drugs that contain so high a percentage of volatile oil as does the bark of sassafras root, which yields not less than six to nine per cent. of it while from the wood of the root generally less than one per cent. is obtained.

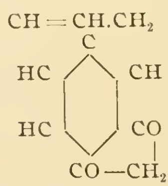
The oil of sassafras bark, when freshly distilled, is an almost colorless liquid, but when exposed to light and air it gradually assumes a yellow, reddish or even brown color. Its specific gravity is between 1.07 and 1.08, with an optical rotation to the right, varying from + 2 to + 4 degrees, the degree of rotation being lower as the specific gravity rises.

* Read at a meeting of the New York College of Pharmacy.

It may be of interest to mention in this connection that regularly every spring there appear in commerce oils which possess abnormal (*i. e.*, too high or too low) specific gravity. Distillers frequently contest the accuracy of the determinations of the specific gravity of their oils with great indignation, for they know that the samples with differing specific gravities were taken from the same tank of oil. The simple explanation for this is, that oil of sassafras consists chiefly of a crystallizable body, safrol, which possesses a specific gravity as high as 1.108 ; if this body crystallizes from the oil during the cold winter months, it forms, after remelting in warmer weather, a heavy layer of the bottom of the container which becomes mixed with the bulk of the oil only very slowly. Samples drawn from the top of such a container will, therefore, have a very different specific gravity from that drawn from the bottom of the same vessel. For this reason oil of sassafras should always be well mixed before drawing it off if it has been exposed to such low temperatures as to crystallize.

If large quantities of oil of sassafras are kept cold for a longer period, safrol will crystallize out in very beautiful, strongly refracting, colorless prisms, which sometimes attain a length of more than a foot, and a diameter of an inch or more. By repeated treatment in a freezing mixture, with proper fractional distillation of the remaining liquid parts, about 80 per cent, of pure safrol can be isolated from the oil.

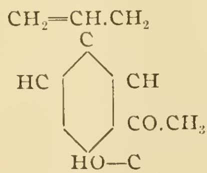
Pure safrol is an optically inactive, colorless liquid (melting at 8° C.), boiling at 232° C., and possesses a pure, agreeable sassafras odor. Its chemical composition is $C_{10}H_{10}O_2$; and extended chemical study has proven that it is the methylene ether of an allyl-pyro catechin :



Derivatives of sassafras oil.—If treated with oxidizing agents, it yields. among other products, by oxidation of its allyl to the aldehydic group CHO, a substance that is highly appreciated in perfumery, the well-known piperonal or heilotropine, and by further oxidation piperonylic acid. When safrol is boiled with alcoholic potash its allyl group, $CH_2 = CH$, CH_2 is transformed into the isomeric propenyl group, $CH_3CH = CH$, thus forming iso-safrol, a substance generally similar to safrol, but of a less agreeable odor, a higher boiling point, 247° C., higher specific gravity and higher refraction to light. Upon oxidation it also yields piperonal and piperonylic acid, but with considerably greater ease, for which reasons it forms the base for the technical manufacture of heliotropine.

Those parts of sassafras oil which remain liquid even in a freezing mixture, can be separated into their constituents by fractional distillation. In this way a considerable fraction is obtained, boiling between 155° and 175° which consists chiefly of pinene, $C_{10}H_{16}$, that terpene which is found so generally in volatile oils, and which forms the greater part of oil of turpentine. It can be easily identified by its crystalline nitrosochloride and by the easily crystallizable benzylamine and piperodine compounds of the latter. Besides pipene a small amount of another terpene, $C_{10}H_{16}$, is present, which forms a solid, but very unstable addition product with nitrous acid, by which reaction it is recognized as phellandrene, a terpene also very frequently met with in essential oils.

The higher-boiling fractions of sassafras oil contain about 0.5 per cent. of a body which can be extracted by means of a diluted solution of alkali. When set free from this solution by sulphuric acid, it forms an oil, which by its clover-like odor and the formation of a benzoyl compound melting at 69° C., can be identified as eugenol, the characteristic constituent of oil of cloves. Eugenol, $C_{10}H_{12}O_2$, is distinguished from safrol only by possessing two additional atoms of hydrogen in its empirical formula. In its structural composition it is also closely allied to the latter, being the methylic instead of the methylenic ether of the same phenol:



We therefore are led to suppose that safrol and eugenol are generated in the plant by nearly allied processes.. Those fractions of sassafras oil which boil in the neighborhood of 200° C., upon cooling yield an abundance of colorless prisms, which, after proper purification, can be recognized as common dextro-camphor, $C_{10}H_{29}O$, by their melting point, odor, optical rotation and the formation of a well crystallizing oxime melting at 115°. In one authentic specimen of sassafras oil as much as 6.8 per cent. of camphor has been found by reduction of the camphor to borneol, $C_{10}H_{18}O$, acetylizing the latter with acetic anhydride and saponifying a weighed amount of the acetylized oil.

The highest boiling fractions of the oil seem to contain a small amount of a sesquiterpene, $C_{15}H_{24}$, according to certain color reactions apparently cardinene, the presence of which, however, has not yet been proven beyond all doubt.

The composition of oil of sassafras bark may therefore be summarized as follows:

Safrol, $C_{10}H_{10}O_2$,	80 per cent.
Pinene,	
Phellandrene, $C_{10}H_{16}$,	10 per cent.
d-camphor, $C_{10}H_{16}O$,	6.8 per cent.
Eugenol, $C_{10}H_2O$,	0.5 per cent.
Cardinene, (?) $C_{15}H_{24}$,	2 7 per cent.
and residue.	

Attention might be called to the singular fact that all these compounds contain 10 atoms of carbon in the molecule, with the exception of cardinene which has half as many more. It seems also that this circumstance points to an intergenetic relation of these various products of the same plant. Another coincidence which should not pass unnoticed is, that oil of sassafras bark in its qualitative chemical composition closely resembles oil of camphor, which is, however, not so surprising, seeing that the sassafras and camphor trees belong to the same plant family.

This similarity in composition has been for some time familiar to chemical manufacturers, who seized the opportunity for producing substitutes for oil of sassafras from the oily by-products of the manufacture of camphor. As a result, artificial (?) commercial, oils of sassafras are nothing else than fractions of Japanese camphor oil, of about the same specific gravity, 1.07, as that of the natural oil. Such substitutes are, for their cheapness, very largely used, especially by soap manufacturers. Pure safrol, which is produced commercially from the same source, also finds a considerable use in chemical industry as well as in medicine. For medicinal purposes safrol is even preferable to oil of sassafras as it always has a uniform composition and its purity may be easily determined by the usual tests. On the other hand the natural oil always shows some variation in composition.

Oil of Sassafras Leaves.—In addition to the root bark oil, the composition of which we have already considered, the sassafras tree also produces another essential oil which does not appear in commerce and which in part seems to have been distilled but once for the purpose of chemical examination, namely the oil of sassafras leaves. It is quite well known that sassafras leaves when crushed exhale a rather strong and very agreeable odor. The quantity of oil that can be extracted therefrom by steam distillation, is, however, very small, amounting to only 0.028 per cent. of the weight of the fresh leaves. The oil has, when fresh, a greenish-yellow color, turning to a reddish-brown with age ; it has a much lower specific gravity, 0.873, than the bark oil, an optical rotation of plus 6 degrees 25 minutes and a very agreeable odor somewhat resembling oil of lemon and oil of citronella. The characteristic odor is indeed due to the presence of the same aromatic bodies which exist in the latter oils, for chemical examination has proven that the oil contains a considerable amount of citral,

$C_{10}H_{16}O$, and geraniōl, $B_{10}H_{18}O$. Citral, the source of the lemon odor, can be isolated by taking advantage of the fact that it forms a compound with sodium bisulphite ; and geraniol, the alcohol from which originates the rose-like odor of the oil of citronella; oil of geranium and otto of roses may be identified by the formation of a solid compound with calcium chloride. Besides this, another alcohol, isomeric with geraniol, has been isolated, namely linalool. This alcohol is found associated with geraniol, in many essential oils, and when present either in the free state or in the ester of acetic or of valerianic acid, is the source of the sweet odor of oil of linaloe, oil of lavender and oil of bergamot. Derivatives of these two alcohols are also present in oil of sassafras leaves, in the form of their acetic and valerianic esters. Apart from these highly aromatic principles the oil also contains several terpenes, namely pinene and phellandrene, considerably more of the latter than is present in the bark oil ; there is also,apparently a considerable amount of some hydrocarbon,$C_{10}H_{16}$,which belongs to the "aliphatic terpene" class. These bodies are highly interesting, but so far have not been completely investigated. They are hydrocarbons with an open chain of carbon atoms containing three double bonds, and are characterized by a low specific gravity, high refractive power (compared with ordinary terpenes) and excessive tendency to polymerize. This peculiarity renders their investigation very difficult. It is not unlikely that they form the mother substance of quite a number of other constituents of essential oils. In the highest boiling parts of sassafras leaf oil, some cardinene seems to be present and also a paraffin-like substance melting at 58° C. Such paraffins are often found in oils distilled from leaves, as in oil of gaultheria and otto of roses ; the latter contains so large an amount that the paraffins crystallize out at even a moderate temperature.

Reviewing this enumeration of the chemical constituents of the two oils from sassafras, we find therein a striking and interesting example of the ability of some plants to produce in their various parts, oils which are fundamentally different in their chemical composition. It would be very desirable if extended researches in this direction could be made with other aromatic plants, as such investigations would probably throw some light upon the question which so far has been found unanswerable : How does the plant produce the great variety of complicated substances, the mixture of which constitutes its essential oils ?

The Alkaloidal Value of Belladonna Leaves.*

By W. A. Puckner.

It is well known that belladonna leaf varies widely in alkaloidal strength and that the pharmacopœial description in no way aids in the selection of a physiologically active drug, and it is to be hoped that at the next revision of the Pharmacopœia this state of affairs will be remedied by the adoption of a more definite description of a good specimen, if this be found possible, or else by the adoption of an alkaloidal standard.

To the many arguments advanced for and against such alkaloidal standardization I wish to add the results of a series of essays of commercial belladonna leaves which I believe will be the best possible argument in favor of an alkaloidal standard, as they will emphasize how great a difference in alkaloidal content may be in different specimens of the drug.

Gerrard[1] has studied the alkaloidal value of belladonna leaf grown under various conditions and finds that the leaf of the wild plant is to be preferred, and that it should be collected when the plant is fully matured, and that it then contains from 0.36 to 0.58 per cent. of alkaloid. Gerrard also finds that the fruit is fairly rich in active principle, thus the seeds of a plant, the leaves of which contained 0.58 per cent., were found to contain 0.34 per cent.

Squibb[2] has remarked that in an entire bale of belladonna but a few leaves can be found that will correspond to the pharmacopœial description, and that in buying the drug not a single word of the official description is of any use in selecting a good drug. He cautions against the selection of a drug consisting of large green leaves and in which no capsules are to be found, as having been harvested from cultivated plants when the leaves were most succulent, but not most active. In six assays of powder of good quality from 0.26 to 0.34 per cent. of alkaloid were found and it is concluded that a good quality should contain at least 0.3 per cent.

Kremel,[3] analyzing belladonna gathered during July and bearing unripe fruit and a few blossems, found the leaves to contain 0.70 per cent., the stems 0.16 per cent. and the unripe fruit 0.60 per cent.[4]

Van der Wal[5] finds that the dry extract prepared from the leaves contains 1.691 per cent. of alkaloid, while one prepared from the flowers contains 2.170 per cent.

The assays herewith submitted, confirming the above, were made upon samples taken from bales of leaf offered for purchase.

The parties submitting these goods were informed that the best quality of drug was desired, and that purchase would depend upon the result of assay The assay, according to a modification of Keller's process,[6] indicated :

* From the *Pharmaceutical Review.*

Alkaloid.	Alkaloid.	Alkaloid.
1. 0.46 per cent.	8. 0 28 per cent.	14. 0.26 per cent.
2. 0.51 " "	9. 0 34 " "	15. 0.34 " "
3. 0.24 " "	10. 0.02 " "	16. 0.52 " "
4. 0.42 " "	11. 0.18 " "	17. 0.50 " "
5. 0.38 " "	12. 0.03 " "	18. 0.48 " "
6. 0 01 " "	13. 0.13 " "	19. 0.51 " "
7. 0.16 " "		

When, beginning with No. 6, epidemic like, nearly every specimen submitted was worthless, an order was given to an agent in Germany to forward a lot of wild leaf collected just before flowering and also one collected while in bloom. That collected before flowering is represented by No. 15, the other by No. 16; in both, as probably in all cases where belladonna leaf is referred to, the leaves and tops were collected. No. 16 also contained a considerable number of flowers. That the mature leaves are richer in alkaloid, is further demonstrated by Nos. 17, 18 and 19, which consisted of the leaves and tops and contained many seed capsules filled with well-matured seeds. Nos. 1 and 2 were unfortunately powdered before they were submitted to me for assay, so that no conclusions could be drawn from these.

The following table shows the alkaloidal content of a number of fluid extracts purchased in original containers, and will also give an idea of the quality of the drug in the market:

Number.	Standard claimed.	Alkaloid found.[7]
1	0.35 per cent. by acid titration	0.356 per cent.
2	0.35 " " " "	0.353 "
3	none.	0.313 "
4	0.35 per cent. by acid titration	0.401 "
5	.04 " natural alk. by weight	0.228 "
6	none.	0.156 "
7	"	0.149 "
8	"	0.173 "
9	"	0.228 "
10	0.35 per cent. by acid titration	0.360 "

It is seen that those fluid extracts for which a standard is claimed (0.35 per cent., alkaloid by acid titration is the value commonly adopted) usually come up to it while the remaining fall below this figure. While the lower alkaloidal content of the unassayed fluid extracts may be due to faulty methods of manufacture, it is far more probable that it is due to the drug used. No. 5 is seen to contain 0.288 per cent. according to my assay, while an alkaloidal strength of 0.4 per cent. is claimed for it; yet, this must not be taken as a wilful misstatement, for it is stated to contain 0.4 per cent. of natural alkaloid by weight, whereby it is meant that the (impure) alkaloidal residue as extracted in the assay was weighed and from

this the per cent. calculated, instead of calculating from the volume of volumetric acid required to neutralize the residue.

Of the assays of belladonna leaves published elsewhere the following are noted:

Coblentz[8] reports the assay of four specimens, German, containing 0.212, 0.42, 0.18, 0.109 per cent., and two English specimens with 0.422 and 0.411 per cent. of "purified alkaloid" by weight, or an average of 0.292 per cent.

Lyons[9] reports 26 assays showing a variation of from 0.23 per cent. as the lowest to 0.87, the highest, or an average of 0.44 per cent. of alkaloid "by weight."

Thompson[10] reports twelve assays with a maximum of 0.5, a minimum of 0.27 and an average of 0.40 per cent. of total alkaloid by weight. He also mentions fifteen assays made in 1890 giving an average of 0.33 per cent.

It is to be observed that the assays so far quoted all report the amount of alkaloid by weight, *i. e.*, the alkaloid extracted from the drug by immiscible solvents is weighed, and that the results, compared with the present method of assay, are much too high. In order to compare these assays with recent ones, based on acidimetric titration, a specimen of belladonna (No. 15), which, according to my assay, contained 0.34 per cent. of alkaloid, was assayed after the method used by Thompson; it assayed 0.46 per cent., and accordingly all assays quoted above should be reduced something like 25 per cent.

Schwickerath[11] reports two specimens containing 0.34 and 0.37 per cent. by acid titration.

Beckhurst[12] finds three samples, to yield by acid titration, 0.486, 0.428 and 0.509 per cent.

Keller[13] finds 0.38 and 0.40 per cent. of alkaloids.

Nagelvoort[14] reports upon 25 acidimetric determinations ranging from 0.2 per cent. to 0.58 per cent., and averaging 0.35 per cent.

If, in view of the above, showing the extreme variation of belladonna leaf as found on the market, it be acceded that the adoption of an alkaloidal standard is desirable, then the question arises as to the value to be adopted. The mean of all assays of leaf quoted, good, bad and indifferent, will be about 0.3 per cent. and a lower standard should certainly be adopted, and a requirement of 0.35 to 0.4 per cent. could easily be complied with. I would recommend that the leaves and tops, collected during or after flowering, be made official, as in this way by the presence of flowers or seed capsules, the fully matured leaf may be recognized and distinguished from the young luxuriant leaves which have been found worthless.

Provisionally I also propose that belladonna leaves be required to con-

tain from 0.35 to 0.40 per cent. of alkaloid, and that any belladonna leaf of a higher percentage may be brought within these limits by mixture with belladonna leaf of a lower percentage, in proper proportions. The recommendation is made provisionally, as it may be found that a leaf corresponding to the proposed description always contains a larger amount of alkaloid and that the standard may be raised above the proposed figure. It is the purpose of the writer to communicate with growers of and dealers in this drug, requesting specimens corresponding to the suggested description. The analysis of the specimens received will be published at a future date.

REFERENCES.

[1] Yearbook Pharm., 1881, p. 482; 1882, p. 400; 1884, p. 447. Proc. A. P. A., 30, p. 162; 31, p. 113; 32, p. 126.

[2] Ephemeris, 2, p. 849.

[3] Abstract, Era, 16, p. 663.

[4] The abstract from which this is taken does not give the method of assay employed and the figures may signify the amount of crude alkaloid as obtained by weight and therefore too high, yet it shows that a mature plant, and seeds and stems as well as the leaves, is rich in alkaloid.

[5] Ned. Tijdschrf. v. Phar., Nov., 1895.

[6] *Pharm. Rev.*, 16, p. 180. (Reprinted in the *Druggist's Circular* for June, 1898, p. 136.)

[7] The figures given are the average results as obtained with methods B and C, *Pharm Review*, 16, p. 303.

[8] *Am. Druggist*, 1885, p. 187.

[9] Proc. A. Ph. A., 1886, 34, p. 110.

[10] Proc. A. Ph. A., 1892, 40, p. 260.

[11] *Pharm. Rundschau*, 1893, p. 282.

[12] Proc. A. Ph. A., 43, p. 241; from *Pharm. Centralb.*, 1894, p. 566.

[13] Proc. A. Ph. A., 43, p. 241; from *Schweiz. Wochenbt. f. Chem. und Pharm.*, 1834.

[14] *Bull. Pharm.*, 1895, 9, p. 284.

Microscopical Characteristics of Powdered Ipecacuanha and Belladonna.

SMITH ELY JELLIFFE, M.D.*

IPECACUANHA.

IPECACUANHA is the root of *Cephælis ipecacuanha*, a native of South America, from Brazil to New Granada, and extensively cultivated in India.

The powder (number 60) is light-grayish-brown in color and has the characteristic penetrating and irritant taste and odor of the drug.

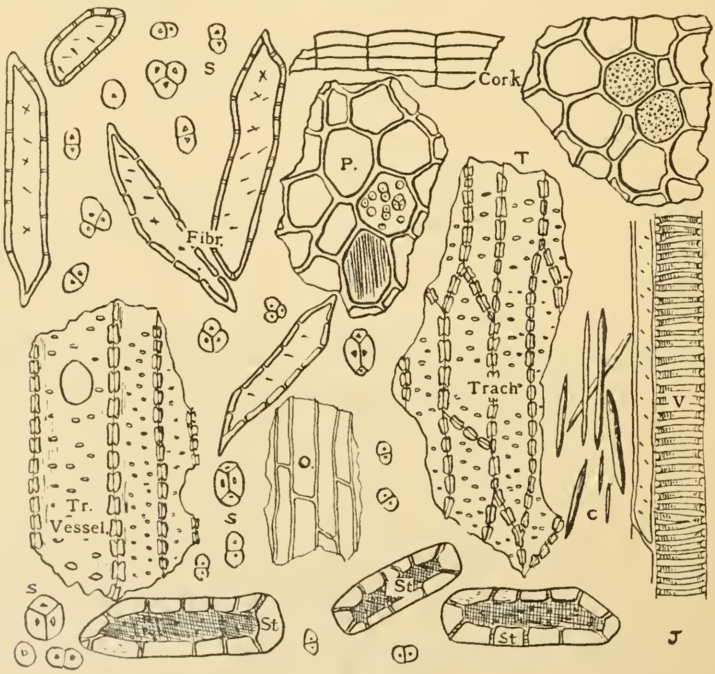
* From *Druggist's Circular*, December, 1898.

Microscopically the following elements enter more or less conspicuously into the powder: Starch, crystals, cork, parenchyma, wood fibers, tracheids and vessels.

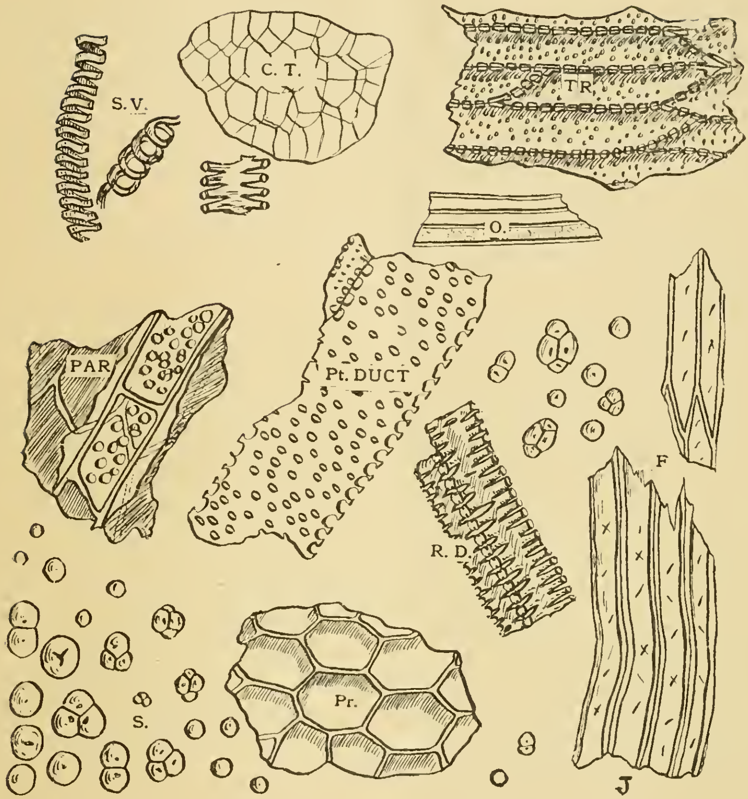
The starch is the most characteristic feature of the powder and is almost of diagnostic value alone. The grains are simple, and in twos, threes and occasionally in fours. The hilum is centric, the margins rounded. In many cases compound granules are observable; in these compound granules the size of the different granules varies, a point which, according to Tschirch, is of importance. The average diameter of the starch grains is from 7 to 9 micra; some of the larger granules may measure from 17 to 19 micra. Kamer gives 4 to 7. The smallest are usually about 2 micra. The starch of Carthagena ipecac is said to range on the average larger than that of Rio ipecac. Schneider's figures are from 17 to 23 micra.

The crystals are of the acicular variety, usually lying in special cells, but in the powder dislodged therefrom, they range in length from about 20 to 100 micra, though this only represents an average.

The cork cells are dark-brown, and without clearing are usually indistinct in outline; in size the cells range from 9 x 15 to 15 x 25 micra.



Powdered Ipecacuanha.—S, starch grains; P, parenchymatic tissue; Trach, tracheids; C, crystals; Fibr, fiber-like tracheids; Tr, Vessel; vessel-like tracheid; St, stone-cells; Cork: to left, tangentially, to right, from surface; O, tissue from phloem; V, spiral vessel from stem.



Powdered Belladonna.—S, starch ; Par. parenchyma, long view ; Pr, parenchyma, in cross section ; Pt. Duct, pored duct ; RD, reticulated duct ; SV, spiral ducts ; Tr, tracheids ; F, fibers ; CT, corky tissue , O, tissue from phloem.

The parenchymatic cells of the cortex form a large part of the powder. The cells are usually ample, ranging from 60 to 100 micra. They are comparatively thin-walled and are usually filled with starch grains. Some few special cells of the parenchymatic sheath contain the acicular crystals of calcium oxalate.

The remaining elements of the powder present an interesting series of gradations in cell structure. In some works they are all called tracheids, yet there would seem to be enough characters to differentiate wood-fiber-like tracheids, true tracheids and vessel-like tracheids. Schneider makes at least six kinds of tracheids in his description (JOURNAL OF PHARMACOLOGY, 4, 1897, p. 3).

The most characteristic cell forms are : (1) Vessel-like tracheids, having large openings, usually at the end of diagonal cross walls ; these are

usually the largest tracheids, measuring from 12 to 35 micra in diameter. (2) Tracheids with bordered pores; usually smaller and having no end opening. (3) Ersatzfasern, or wood-fiber-like tracheids, with diagonal pores; these elements are about 15 micra in diameter and about 300 long.

True vessels are not found in the root of ipecac, unless the vessel-like tracheids are included under that head; functionally they certainly are vessels and morphologically approach them closely. If portions of the rhizome are included in the powder of the root, spiral vessels similar to those figured may be found, also typical stone-like parenchymatic cells, also figured.

Belladonna.

The powder of belladonna is usually grayish-brown in color.

The main histological elements found are starch, ducts, tracheids, fibers, and cork. Crystal sand forms an inconspicuous element of the sand.

The starch grains are numerous, they are both simple and compound, the compound varieties perhaps about as many as the simple forms. The compound granules exist in twos, in threes, occasionally in fours. The average diameter of the simple grains is about 18 micra; individual grains average from 10 to 30 micra; the compound granules range from 20 to 40 micra in diameter. The hilum is usually centric, naturallysome what excentric in the compound granules, is simple or tristellate, the angles of the grain are usually rounded.

There being several kinds of belladonna root in the market, certain variations from the types here described may be encountered. These express, however, the averages of a large number of examinations.

The ducts of belladonna root are manifest; few spirals are found, and a number of reticulated and pitted forms and varieties with bordered pores; much range in diameter of these ducts is to be observed. The average of several measurements gave: Spiral ducts, 18; reticulated ducts, 25; pored ducts, 40 micra.

The tracheids are typical and prominent; their average diameter is about 30 micra. They frequently are very heavily pitted and pored. The wood fibers are few, and, as a rule, quite slender; they average 13 micra in diameter.

Parenchyma filled with starch grains is predominant. The cells vary widely in size; they are usually oblong cylindrical, generally being from two to three times as long as broad, and in the main measuring 25 to 60 micra.

Masses of corky tissues, dark and light-brown, are scattered copiously throughout the powder. On clearing the structure of the cells, the walls become manifest. Some few tissues probably derived from the phloem may be encountered with the xantho-proteic test. These tissues give the characteristic proteid reaction for the cell contents. They may be recognized by their delicate walls and the character of their contents.

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Alumni Fraternalism.

"What Do I Get for My Two Dollars?" is not the only question of interest to the thoughtful, valiant, companionable Alumni member. "What Do I Give for My Two Dollars?" is a subject of equally as much importance.

There can be no harm in reiterating the statement that the Alumni member who is in it only for the material benefits, and who cares nothing for nor contributes anything to the fraternal worth of the organization, is not the hope, the anchor, the keystone, and all that sort of thing, of the great brotherhood.

The Alumni's material benefits are of considerable moment—indeed they are "a whole lot"—but they are not everything.

The Alumni emblem should stand as a fraternal pledge on the part of the person wearing it to make the Alumni membership of every brother and sister member a highly-prized possession, as pleasant as it is profitable.

"It is more blessed to give than to receive," really means much. In an organization in which are such happy fraternal possibilities as are possessed by the Alumni Association, a spirit of good fellowship, of comradery, is everything. It will be well for the members, individually and as an organization, not to overlook the social, fraternal side of Alumni membership, for therein lies the happiest and strongest tie that shall continue to bind together the vast brotherhood, the motto of which might appropriately be, *Non nobis solum*—"Not for ourselves merely."

THROUGH the generosity of President Kemp and his Smyrna agents, Messrs. Alfred A. Keun & Co., an interesting opium exhibit has been received for deposit in the Economic Museum of the N. Y. Botanical Garden, duplicates being available for use in the Museum of the College of Pharmacy. It consists of pressed leaves and flowers of the poppy plant, capsules, dried and in formaldehyde solution, showing the incisions made for the exudation of the opium, white and blue poppy seeds, the cutter used for making the incisions and the scraper used for removing the opium. There is also a series of large photographs showing the stages of production and ending with the examiner's room and the different persons, private and official, connected with the opium exportation. Mr. Kemp is having the exhibit for the college framed, after which it will be hung upon the wall of the pharmacognosy room.

Abstracts.

Acute Chloral Dementia Simulating Paretic Dementia.—H. W. Coe, M.D. (Medicine 4, page 655, August, 1898) A lady aged 56, married, of good family and without hereditary taint who had been ill during the past few years, had transitory delusions of a grandiose form some months previous to the time of coming under the observation of a most excellent family physician. Ataxia was marked especially in the lower limbs. General tremor was present and the tongue could scarcely be protruded, so marked was the trembling of that organ. There was pupilary inequality and the speech was tremulous. Insomnia was marked, and for this and the shifting pains in the back and limbs, a well-known proprietary article, the chief ingredient of which is chloral had been employed in moderate quantities for about a year and a-half. Recently the amount had been increased, yet the total taken did not exceed an average twenty grains of chloral daily. A few days before the patient came under the author's care she had become somewhat violent at times, and delusions of persecution had made her demonstrative and hard to manage. The symptoms seemed to point to paretic dementia or some hopeless chronic dementia. All hypnotics were then discontinued and in a few days her delusions began to wane and her general nervous state to improve. Tremors lessened, speech sharpened and the pupils reacted equally. In two weeks sleep became fairly good, but not normal. In six weeks she was able to manage her estate.

A sea captain, 57 and married, had suffered from mental alienation for some months, finally resulting in delusions of mixed character. Later on he became demonstrative and noisy. The symptoms were much like those of the first case, except that the general mental breakdown was

more pronounced. The diagnosis of paretic dementia seemed natural under the circumstances. The patient had been a chloral faker and said he had used "tons of the stuff." While under the author's care in the hospital, either that drug, sulfonal or other hypnotics were employed to retain the nervous excitement for the time being. Under a suspicion that the case was one of chloral habit, all hypnotics were withdrawn. Four weeks later he was himself again.

Book Reviews.

Atlas of Methods of Clinical Investigation with an Epitome of Clinical Diagnosis and of Special Pathology and Treatment of Internal Diseases. By Dr. CHRISTFRIED JACOB. W. B. Saunders, Philadelphia.

Saunders' Medical Hand Atlases are in many ways remarkable books. Well gotten up, well printed and bound, convenient in size and form and remarkably reasonable in price. We have often been surprised to find that books of such rich illustration could be published for the price. The present volume is an addition to any technical library. For the student of medicine it is invaluable ; the practising physician should certainly have it, or have access to it. For the pharmacist who is entering into clinical work to aid the doctor in accurate diagnosis, it is a very valuable work, though for this class of workers its use is restricted to about one-third of the book. For him, however, the illustrations of the blood, normal and diseased, parasites in the blood, blood spectra and blood crystals, microscopy of the mouth and nasal cavities, microscopy of the sputum, the parasites of the sputum, microscopy of contents of the stomach and intestines, the most important color reactions of the gastric juice, urinary sediments, crystalline urinary deposits, organized urinary deposits, urinary tube casts, urinary sediments in kidney and bladder diseases, the most important color reactions of the urine, demonstration of some medicaments in the urine, contents of cysts, abscesses, etc., some important pyogenic organisms. These and some others are very valuable.

The text of the work is short and to the point, the translation is excellent and the book is really a very excellent one throughout.

Elements of Sanitary Engineering. By MANSFIELD MERRIMAN. Professor of Civil Engineering in Lehigh University. John Wiley & Sons. New York and London, 1898.

Though written from a technical engineering point of view, this little book of some two hundred pages is in many ways a good common-sense manual for others than engineers. The chapter on Sanitary Science, Water and its Purification, Disposal of Garbage and Sewage are practical and scientific. The book deserves a wide recognition.

Alumni, College and Class Notes.

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"Alumni Dinner."

In the spacious "College Hall" at the "Arena" were gathered together the officers of the Alumni and of the College together with members of each and their commercial friends. The Hall was beautifully decorated with College insignia and the boys were all in very good trim.

The President had been in bed five days, but could not resist the "Dinner"; buoyed up by the prospective jolly evening he had regained his health sufficiently to be at the head of the table; and he filled the position as none other could—he introduced the various speakers of the evening by means of little poetic effusions. Covers were raised punctually at nine and for the next two hours the inner man was attended to.

When cigars were handed around the speaking began.

Mr. Thomas F. Main spoke as representative of the officers of the College, rehearsing many of the good qualities as well as a few of the urgent needs of the institution. He alluded to the debt and hoped to see it wiped out in the near future.

Mr. Charles S. Erb was the next speaker. Introduced as the watch dog of the treasury, he alluded in a few words to the present flourishing condition of his trust and reported as having nearly one thousand dollars in the treasury. He hoped to enlist the many participants in the grand work of helping to reduce the burden under which the College was suffering and promised that the Alumni would do its share thereto.

Dr. Takamini, who was next called upon, enlarged on the many benefits his countrymen had derived from America, not only in pharmacy, chemistry, botany and medicine, but also commercially.

Dr. Coblentz, who represented the Faculty, gave his usual good advice, but this time he forgot the woodpile which he has been working on as a good topic.

About this time, Beckary, '98, was introduced as the representative of the N. Y. C. P., in the recent little misunderstanding—he told of the pleasures and hardships of the Naval Apothecary and made the hit of the evening when he explained blockade duty as follows: "The order is given, 'no sleeping to-night,' and that night and during the following twelve or fifteen nights there is 'no sleeping,' constant watching for the foe; about the end of the second week there arises a general wish for the 'League for shorter hours.'" His description of the Santiago and Port Rican battles was both original and interesting. At this point Mr. H. C. Lovis proposed three cheers for the C. P. C. N. Y., and you may be sure they were lustily given.

Dr. Pfingsten spoke for the German Apothecaries Association and Press, interspersing his remarks with several witty stories.

Wm. Kerr, '95, spoke for what he seemed to think was *the only* class amounting to anything, but, friend Kerr, there *are* others. Tuthill, '88, held his end of the Alma Mater up in good shape, as well as did the only "Tanny," '93; but Tanny forgot a great deal that he had wanted to say. The writer saw his speech the night before but it seems Tanny couldn't remember it at all, he forgot all the red-fire, fire-crackers, brimstone and other war-like parts thereof.

Thomas J. Keenan gave us a good send-off, he usually does, you know. He had enjoyed himself so much that he has already promised to be with us next year.

Herold, our own Hieronymus, told us all he knew and some things he didn't know about the ladies; he said that since his wedding he had not had very much time to follow up the subject.

James Rogers and Aug. Hall discussed the commercial side of the dinner.

Bjorkwall, the Registrar, made his maiden speech and it was all right, too. He promises to bring all the graduates into the Alumni Association, no initiation fee. Now, so he says, it's an easy matter but he wants the boys to help him. He promised to give all hands a good time at the Alumni Ball, and as he will be the floor manager, he ought to know what he's promising. At any rate, don't fail to come to the ball, January 25, 1899, Madison Square Garden.

As the chairman had not called on Dr. Gies, there was a popular uprising and a general request for Dr. Gies. In his response he told us how not to be "done" by our friends, not to hesitate crying help! if need be, and wound up by telling an entirely new and, of course, original story.

At 2 a. m. the party dissembled and all seemed to have spent a most pleasant and enjoyable evening. Regrets were received from Professors Chandler, Elliott and Jelliffe, Messrs. Kemp, Massey, Bigelow and Royce. Long live the memories of the dinner of '98.

C. S. E.

Alumni Socials.

Two of these most pleasant gatherings have now come and gone, and the pleasant recollections still linger in our minds. The decided success which marks each and every one of these socials has induced the Association to purchase a piano to be used for the dances and entertainments. The third Wednesday of each month is set aside, and you will surely be pleased when you see the galaxy of fair women which graces the occasions. The participants are too numerous to mention here, and then again you should be present and see them yourself.

Do not make an engagement for the night of January 25th, 1899, before consulting the Alumni Ball Committee. They can advise you where to go on that night.

'93 and Before.

Boyce has just left us know that he has just recovered from an attack of yellow fever at the Marine Barracks, Key West, Fla.

John Metzger, '78, is located in Providence, R. I. He will be glad to see any of the boys if stranded in Newport.

Hardenburgh is with Harrington, Brooklyn.

Friedlander is the only fellow who ever got the best of the "Bookmakers."

'90 Stuerner is sorry baseball has quit—snow prevents the games—but how about the alleys, Stuerner?

Chas. Pignol wants to buy a slice of the Klondike—he has sold his Brooklyn store.

Geo. E. Schneider, '82, has picked out a good location, near the Home of the Incurables. No fear of his patients getting well.

Wm. N. Haverstick is with Norwich Pharmaceutical Co.

R. J. Westermayr, '83, owns part of two States. He is in New York and Conn. Port Chester, N. Y., and East Chester, Conn.

Edward Katz, '88, has just launched in the business for himself in West Haven, Conn.

E. P. Holland, '85, is back at Priests', 23d St. and 7th Ave.

Christian G. Busse is managing Menn's store, Centre and Pearl Sts.

Adolph Franck, '86, is in Hackensack raising muskmelons as well as hirsute appendages.

Aug. Hitzel, '86, has taken to supplying the museums with snakes and alligators.

Geo. Kleinar is getting fatter and fatter—good air on Park Ave.

Charles Ludwig, '86—you ought to see him on the "drive" with his Tremont pacer. His record is 5:40 in the shade.

'95 Notes.

We are pleased to announce that our friend and classmate, J. J. L. Young. was married on the 19th of June, 1898, to Miss Harriet Ross, of Brooklyn, N. Y., at St. Michael's Protestant Episcopal Church. Mr. Young has been in the employ of Messrs. Eimer & Amend for a number of years. He is contemplating taking a course of medicine. As in the past he has succeeded, so for the future we extend our best wishes to Mr. and Mrs. Young.

'96 Notes.

Eugene Zeiner is now at the P. and C. taking his dose of medicine. Don't forget Zeiner, "practice what you have preached."

Wedding Follows a Southern Romance. Druggist, Born in Cuba, Marries Girl Whose Acquaintance He Made Through Bicycle Accident.

TERRY—MAGRATH.—October 22, 1898, by Rev. Thomas R. Halpin, ALFRED F. TERRY, of Cienfuegos, Cuba, and Miss MARGUERITE MAGRATH, of this city.

This notice, printed yesterday, was the sequel to a little romance begun just a year ago.

Alfred Terry is a cousin of Antonio Terry, a wealthy and prominent Cuban planter. The bride is a daughter of G. M. Magrath, of No. 150 Lenox avenue.

Terry met Miss Magrath a year ago. Standing in front of his drug store, at 114th street and Lenox avenue, he heard a scream and a crash. A young girl, with light hair and large blue eyes, was trying to wind her handkerchief around her cut hand. At her feet was a badly wrecked bicycle. Terry asked her into his store and dressed her wound. From that day he met her at school and escorted her home every afternoon.

Mr. Terry was born at Cienfuegos, and came to this country in 1884. He was graduated from the College of Pharmacy five years later.

'97 Notes.

Dick Devine is now with the Bolton Drug Co., 456 Fulton street. He was formerly with J. Milhau's Sons, Broadway, New York City.

"Shears" now distills H_2O. He is said to have quite a fine laboratory in West 47th street. Success be yours, old man, is our wish.

That lovely man "Ferdinand," is now manager of Hegeman's, 9 E. 59, ℞ department. He wishes to be remembered.

Steinbruhl is with the Messrs. Hunt & Gugorious in their 1st avenue and 15th street pharmacy. Say, fellows, how about it, what did you get in quiz rating? Are you on?

Our perfect gentlemen "Remele," according to the highly distinguished lady of our class, has charge of the Polyclinic Hospital ℞ department in 34th street, N. Y. When I called on him last time, he was very busy on specimen work.

Oscar Wirth is now with W. C. Burchardt, Broadway and Green avenue, Brooklyn.

Lindner, our Danish boy, is now with the Shield's pharmacy, 165 Hudson avenue, Brooklyn. Reports say he is in love, this nice young man from Old Denmark.

Dr. Murow is managing Mr. J. F. Wurthman's up-town store on 1st avenue. He feels happy and contented, he says. Wishes college days were back again and says he misses some of the good old times, we formerly had, which will never again occur, he thinks.

The "real thing" in clog dancing, who we all know could make a wonderful success in that capacity, if he cared to. "Cohn" is with Mr. Faber, 1102 2d avenue. Cohn, I should judge from his past achievements, would make an excellent "Rag-time" member. He certainly did dance in our dear days, when we were one great family.

Edward Steinecke is with J. G. Koehler, 300 Broadway, Brooklyn. He is as ever, that happy-go-lucky boy. Still rooting for old '97.

Brother "Brown" of Junior-year fame, the hero of our class, has just returned from an expedition for the British Government through Africa. He tells many interesting tales of his adventures. Among others the fact that they came on a tribe who had never seen a white man before. He will let you know all about it in one of the future issues of this JOURNAL. He is now with Mr. J. B. Joyce, of 1769 Broadway, Brooklyn. He extends his fraternal greeting.

The one and only of "Maltine" fame. The only and real pebble, "Slattery," is now with Mr. William C. Anderson, of 320 Lafayette avenue, Brooklyn. He says he is real good now and never will speak to Morey again. You all know why.

Schultz is up on Avenue A and Eighth-fifth street, and, judging from appearances, is still studying. You know the boy was always industrious. Possibly he believes himself still at our Alma Mater.

Metz next. That quiet boy, he who formerly claimed my home State, "Wisconsin," his, and who was one of our brights, is with Meyer Bros.' Pharmacy, 1210 Third avenue. He wishes the boys would remember him when up his way.

Kindly send all communications to me at the following address. And please don't forget to send some for it is time the boys are waking up.

EDWARD A. MEINECKE,
Care of Fischer Chemical Importing Co., 14 Platt street, New York City.

'98 Notes.

I heard from Davidson the other day. He is up at his home at Ogdensburg, N. Y., working in his father's store, and wishes to be remembered to all the boys.

It is rumored around that Teufer had to leave town rather hurriedly a short time ago on account of an unpaid board bill; but I don't think that he would do such a thing. How about it, old man?

The boys, I know, will be glad to hear that Miles has left the navy and is now working for C. O. Biglow; and A. F. Ebehardt, who has also left the navy, is now with his brother at Twenty-second street and Tenth avenue.

At the last Alumni social our class was not very well represented, there being only J. J. Morgan, A. Brickay and myself there.

According to Mr. J. J. Morgan he is going to become a "is it" (a "is it" in this case meaning a benedict"). He has got tired of being a "would be." The cards are not out yet, although the wedding was to take place November 23, '98. The best wishes of the class are with him and his wife.

I take this means of wishing all the class "A Merry Christmas and a Happy New Year."

The next thing on the program, boys, is the Annual Alumni Ball, which takes place January 25, '99, at the Madison Square Garden. I can guarantee that we will all have a good time and should be well represented.

From present indications there are no classes which can excel our class either in numbers, learning and noise, especially the noise.

By mistake Mr. J. L. Byrne was left out of the names of the number of the post graduates.

T. B. F.

'99 Notes.

I am pleased to note that Section 2 has retained its members from last year with a very few exceptions.

I am told that Vice-president Jackson has published a song entitled "Dreamland," dedicating the same to one of his many lady friends. She must be a *dream* (as we would say), according to the song. I am also told that Steinway is the home of this particular "dream."

Kessler has joined our section, to our pleasure I may say, as he is the one keeping the section almost always in a continual laughter.

The new heavenly twins!
Ward and Michel (*Louis!*).

Ward, by the way, is now the prosperous owner of his late father's, the Dr. Ward's, Pharmacy, on Second avenue and Fifty-fourth street.

F. S. Frankfurter, who until the opening of this session practiced with C. F. Mayer, has accepted a position with J. Dolson, who is about to open a new very pretty store on Seventy-ninth street and Lexington avenue. The change may do you good, *Freddie!*

Pompelly seems to be very quiet this year. I wonder whether the war brought this about and whether he is still worrying about the few chances that were given him to distinguish himself.

Hogle is still with our Mr. Erb, on Amsterdam avenue.

Taddiken, who, until the opening of the college, was with Mr. Coughleton on Ninety-ninth street and Boulevard, has given up the said position to be able to attend to his studies at all times.

"Jack" Krause has now full charge of his uncle's store on Lexington avenue and 109th street, his uncle having opened another store above the Harlem Bridge.

Winters, our former classmate, is still on the U. S. ship "Solace," which arrived at Santiago, November 10, with hospital stores.

Lacina has this year identified himself with the class of '99, Brooklyn College of Pharmacy. He confided to me in the course of a long conversation, that the Brooklyn beer better suited the taste of a Bohemian.

Dr. ———. Is soap soluble in water? Student. No, sir. Good morning! Good man! Have you used Pear's Soap [Old English Legend]?

Mr. Davidson wishes to extend his sincere and heartfelt thanks to the students of Section 3, who have so generously contributed toward removing the hirsute growth that until recently covered portions of his face. He would not be ungentlemanly enough to hint that some were led to contribute through feelings of envy, and has but sympathy for those unable to do so, feeling that they, too, perhaps, deserve as well the charity of our '99 philanthopists.

The popular song at present is "Rue, Rue, my own sweet baby Rue." Sung in combination with (Solomon) Levi, or more approved spelling, Levy, it forms soul-stirring chords.

Our section is much larger than the other this year. Not hardly fair though to have all the ladies in another section.

A number of our section are indebted to Vars for type-written copies of the Chemistry Quiz Synopsis. It would be a good idea for all the class to unite in having them printed which could then be done with little expense.

By the way, Vars is being whispered of as a popular candidate for next class president. Nit!!

C. F. EHLIN.

N. Y. C. P. C. C.

The Cycle Club Ball will be held in Maennerchor Hall (203–207 East Fifty-sixth street), on Wednesday evening, February 15th; tickets at 50 cents each may be had from any member of the committee. Through the courtesy of the Alumni Reception Committee, this ball will replace their regular monthly dance, hence the combined forces are expected to attend. Dancing will commence promptly at 8:30 p. m., thus giving the guests an ample opportunity of enjoying themselves. Further particulars will follow in the January JOURNAL.

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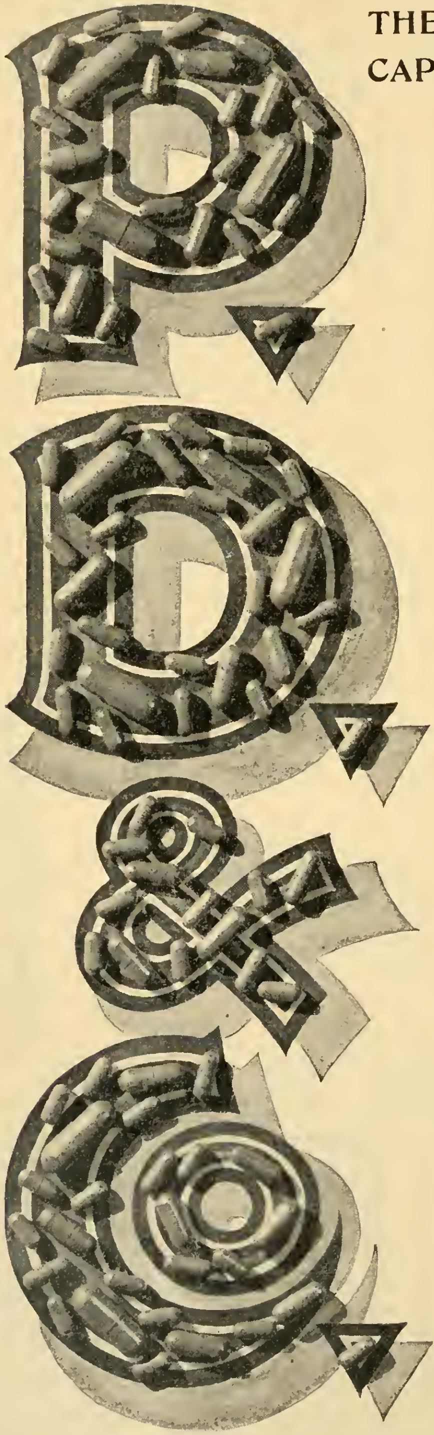
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